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ABSTRACT

This book contains eight papers reporting research projects that were conducted by adult language, literacy, and numeracy practitioners with funding provided through one-time scholarships to Tasmanian students in the field of adult language and literacy. The following papers are included: "Foreword" (Ian Falk); "Preface" (Margaret Penson); "How Do Power Relationships, within an Adult Literacy Initial Assessment for CES (Commonwealth Employment Service)-Referred Clients, Influence the Assessment Discourse?" (Maree Watts); "Which Agenda? The Dilemma for ALBE (Adult Literacy and Basic Education) Program Planners" (Ann Brooks); "Institutional Language and Power: A Critical Analysis of Hospital Language" (Steve Holden); "Does Educational Kinesiology Provide Cognitive Outcomes--And Is It Accepted by Adult Literacy and Basic Education Students?" (Rees Campbell); "How Does the Government's Special Intervention Program for the Unemployed Differ from What Tutors Consider 'Best Practice' within Adult Literacy and Basic Education? A Philosophical Enquiry" (Fay Forbes); "What Are the Critical Components of a Workplace Literacy Program in a Community and Health Setting?" (Patsy Hall); "How Can Language Reshape the Mathematical Knowledge of the Adult Learning from the Informal to the Formal?" (Toni-Anne Carroll); and "Diagrams and Text: Report on Recent Research, 1994-1995" (Stephen Coull). Most papers include substantial bibliographies. (MN)

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ADULT LITERACY RESEARCH NETWORK

Literacy, Adults and Diversity

Lyn Tett
and
Margaret Penson

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Edited by Ian Falk and Margaret Penson

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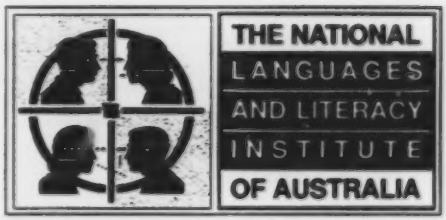

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Foreword

All too often an aura of mystery surrounds the activity of research. During the Winter School which laid the foundations for the eight pieces of research reported in this book, James Gee, Jean Searle and I tried to de-mystify the word - to take it out of the perceived rarefied 'university' culture where research is seen as 'academic', too hard, specialised, remote, not for 'ordinary folk'. It was our aim to re-position research as a tool useful and integral to all areas of professional endeavour; to demonstrate that practitioners were, and could not avoid being, researchers on a moment-by-moment basis. The process of research is, we argued, as much an embedded part of our daily lives as is language and literacy itself.

'Research' is, after all, simply about 'searching' or 'looking again'.

The eight people who undertook the research projects are adult language, literacy and numeracy practitioners of various kinds. During the course of the research activities, and in the times we all came together to discuss progress, the participants were struck by two fundamental principles: in learning *about* language and literacy in their various fields of endeavour, they were also learning *through* language and literacy.

In the eight pieces of research reported in this book, the diversity produced is a real strength. The richness resulting from learning about and learning through language and literacy can be seen in the topics with which the researchers have chosen to engage. Ann Brooks, Rees Campbell and Fay Forbes investigate an area of adult literacy practice, though from different perspectives and in different ways. Some of the researchers looked again at how research is integrated with their language and literacy practice through using discourse analysis in their methodology: Maree Watts, Stephen Holden, and Toni-Anne Carroll adopt this approach. Patsy Hall and Stephen Coull analyse specific work situations to find out what the language, literacy and numeracy aspects are that 'make them tick'.

This is the first title in our series called 'Literacy and Learning'. In the research reported here, the theme of diversity in learning about and through language and literacy is paramount. What never ceases to amaze me is that these diverse research projects all arose from a quite homogeneous group of people brought together under a single university course. To me, this is a demonstration of the strength, practicality, imagination and experience of all those who undertook what became an arduous yet rewarding process, and to all of those folk, a big pat on the back.

Ian Falk

Acknowledgements

All those involved in the production of this book would like to thank the NLLIA for their financial support which made the project possible. Special thanks to Margaret Penson for her efforts in coordinating this book.

Copy editor's notes

1. The bibliographic conventions, while internally consistent, vary from report to report. This decision was made out of respect for each author's preferred format.

2. Where participant students or institutions have been named, pseudonyms have been used.

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Preface

In 1994 the National Languages and Literacy Institute of Australia (NLLIA) and the University of Tasmania's Department of Education worked collaboratively on a research project where eight 'once-only' scholarships were offered to Tasmanian students to engage in and write up a piece of research in the field of adult language and literacy.

Each of the students was able to credit this research against the Department's Graduate Certificate in Adult Language and Literacy. This book contains the eight research reports which resulted from this collaborative exercise.

It is the first publication in the 'Literacy and Learning' series which will be published by the NLLIA over the next six months. Other titles in this series include:

Adult Learning: An Analysis of Cultural Variations by Megan Lee

Literacy Informing Learning: Aboriginal Perspectives This publication will include work by Stewart McKinney and Warren Hancock.

Adult Learning and Specific Disabilities: Aphasia by Sue Brown.

Margaret Penson

HOW DO POWER RELATIONSHIPS, WITHIN AN ADULT LITERACY INITIAL ASSESSMENT FOR CES-REFERRED CLIENTS, INFLUENCE THE ASSESSMENT DISCOURSE?

Maree Watts

CHAPTER 1: INTRODUCTION

My research is about power and its effect on an Adult Literacy initial assessment for unemployed clients referred by the CES. I wanted to raise both my and others' consciousness of what was occurring in literacy assessments because so much further training depends on the outcome of observations and recommendations from this initial assessment.

I decided to enrol in a formal university course, the Graduate Certificate in Adult Literacy at the University of Tasmania, to enable me to approach my research in a disciplined and supported way. I had tried to undertake my own reading before I enrolled in the course, but the day-to-day commitments at work and at home always seemed to prevent any real development in my theoretical understanding of the changing literacy field.

The concept of power interested me because it seemed to be raised informally at my workplace, at home and in the media on a very regular basis. At work we talked generally of empowering students and used the term in a largely automatic way and at home and in the media there seemed to be constant references to people being disadvantaged by other people - numerous current affairs programs focus on these issues on a daily basis.

I began to examine power by reading widely. I could not readily locate specific information on power in literacy assessments and had to read other texts which examined power more generally. Defining power was not an easy task but I began with a basic definition from the *Oxford Dictionary* (1993). Power, in relation to assessment, is the ability to do or act and includes concepts such as government, influence, authority and personal ascendance over someone or something. The definition mentions many of the concepts and institutions that I believed impacted on my literacy assessments. I then began to read Fairclough (1989) and further developed my understanding so that it incorporated the idea that power is

> *the capacity to impose and maintain particular structuring of some domain or other - a particular way of dividing it into parts, of keeping the parts demarcated from each other, and a particular ordering of those parts in terms of hierarchical relations of domination and subordination.* (p. 13)

Fairclough's concept of power seemed particularly apt because when I examined my assessments, I could see ordering and structuring and changing roles of domination and subordination. I had constructed this order in a purely subconscious way, yet the people that I assessed seemed to unconsciously accept this order. I began to wonder why

we were all so compliant about this power division. I decided that power relationships and how they impact on my assessments would be the pivotal focus for my research.

I could not look at power in isolation and began to read widely. Gee's (1990) thoughts on literacy and context seemed particularly apt. From the day we are born we begin to learn how to relate to each other and unconsciously learn the correct way to behave and speak in different situations or Discourses. Gee argues that in order to be able to appreciate language in its social context we need to focus on Discourse (with a capital D) and not just on language. "Discourses include much more than language." (Gee, 1990, p. xv). We become adept in certain situations by learning the acceptable ways of *"behaving, interacting, valuing, thinking, believing, speaking, and often reading and writing that are accepted as instantiations of particular roles by specific groups of people..."*(Gee, 1990, p. xix).

This unconscious acceptance of roles creates an opening for dehumanised relationships. Many people perform tasks in an unthinking manner, accepting everything unquestioningly. Such attitudes to tasks can lead to a dehumanised society. If consciousness about society is not raised, bureaucracies can dominate and pigeonhole people into numbers, ignoring character and personality, because when the power relationship is unconsciously in operation, it is easy for the dominant power group to manipulate others in society. Historically, Australian society has been structured around middle-class schools, teaching middle-class values and enabling middle-class students to succeed. In the classroom students learn when to respond, when to ask questions and even what questions to ask. Those who do not wish to accept this relationship or are unable to understand it/master it/make sense out of it are soon labelled as difficult students and often drop out of school.

Power underlies all our accepted conventions: who has the right to ask questions in a discourse, who talks, who replies. I went to a specialist doctor while undertaking this research. Fortunately my consciousness about relationships was beginning to develop and enabled me to realise how the doctor was building up his power base. The doctor asked me to complete a form which required me to state my husband's occupation. I was puzzled about the relevance of this question when I was the one being treated. I decided to ask why this question was on the form. The reply was that it would enable informal conversation to occur. I stated that I considered this question as unnecessarily invasive and did not answer it. It was extremely difficult for me to do this because I normally answered questions asked without really considering the unstated assumptions underlying them. I then had to relate to the doctor as a person and not be deferential to him when I really wanted to just do what he asked. The doctor too had accepted his role in this Discourse and his right to ask anything that he thought he wanted to know. How difficult it was for me to challenge the accepted Discourse pattern: Even taking the simple step of calling the doctor by his first name had to be a conscious effort. I am still trying to accept that it is difficult for me to raise my consciousness and to become 'actively' involved in any Discourse.

Identifying the power relationship in any Discourse is not easy but I wanted to

identify power within an adult literacy assessment. After reading the university literature I decided that examining the conversations that occurred in literacy assessments would enable me to gain some understanding of what was occurring in the assessment. I at first wanted to examine many assessments by different assessors, but the sheer volume of dialogue in one assessment prevented this. Instead I have had to record my own assessments and have examined three assessments in detail with the hope that some patterns in power relations would become evident. After playing the first recording of 'D' I became aware of some of the techniques I was using. I then became much more aware of what I was saying in the assessment and whenever I remembered I did attempt to break my usual pattern of behaviour and used language which enabled more input from the client being assessed.

The research was having a positive impact on my delivery, even before I analysed the data. I believe that recording the assessment was an effective way to examine power relationships. I have to admit that only verbal language has been recorded; all the other elements of communication have had to be excluded. I realise that this will place limits on the interpretation of my results but I think it would have been too intrusive to use video recordings of the assessments. I did not record all assessments because some clients were far too nervous and upset, not knowing what to expect. If I had asked these clients for permission to record their assessment I think I would not have been able to continue the assessment.

The rest of this paper is set out in chapters:

- Chapter two anchors the research theoretically with the emphasis on power, discourse, literacy and assessment.
- Chapter three explains the methodology that was used to examine the assessments.
- Chapter four gives the transcripts of the assessments with a brief description of what occurred, locating the data around the main themes of institutional power, the client assessor relationship and the assessment interview Discourse.
- Chapter five analyses the data, identifying the main participants in the initial Adult Literacy assessment of unemployed clients.
- Chapter six arrives at conclusions which could be followed up by further research or may simply give rise to further thought.

CHAPTER 2: LITERATURE REVIEW

When I began my research I needed to clarify and further develop my thoughts on many theoretical issues so that I could attempt to describe and analyse what was occurring in an assessment interview. The major areas that I decided to read about were power, discourse, assessment and literacy. I quickly discovered that this was a huge task and that not a lot of information had been published in relation to power and the Adult Literacy assessment discourse. As already stated in chapter one, the major topic and theme that I became interested in was one revolving around power. The rest of this chapter examines the literature on this main area of interest and also associated literature on assessment and literacy.

Power and Discourse

Power is not a concept which can be examined in isolation and theorised about, instead it is important to examine it in operation in everyday communication because it has a pervasive effect on Discourse. As Fairclough (1979, p. 13) says, *"one aspect of power is the capacity to impose and maintain a particular structuring of some domain or other"*. We all unconsciously acquire and consciously learn this structuring as we communicate with each other. The distinction between acquisition and learning is important to differentiate because when we later examine the assessment Discourse we will see that the assessment attempts to measure both processes. Gee (1990, p. 146) makes a very clear distinction between the two. He states,

> *Acquisition is a process of acquiring something subconsciously by exposure to models, a process of trial and error, and practice within social groups, without formal teaching. It happens in natural settings which are meaningful and functional in the sense that acquirers know that they need to acquire the thing they are exposed to in order to function and they in fact want to so function...*
>
> *Learning is a process that involves conscious knowledge gained through teaching (though not necessarily from someone officially designated a teacher) or through certain life-experiences that trigger conscious reflection. This teaching or reflection involves explanation and analysis, that is, breaking down the thing to be learned into its analytic parts...*

Acquisition and learning enable an individual to fit into particular Discourses within society (because he or she knows the structure) and there is one particular Discourse that is easy to slot into because it is very closely identified with. This particular discourse is called by Gee (1990) the "primary Discourse". This primary Discourse then provides a framework for the acquisition and learning of other Discourses that then enable more (secondary) Discourses to be learned and acquired. Thus, an elaborate interaction of Discourses is built up within an individual and all these are going to influence communication even when only one dominant Discourse is thought to be operating. An assessment Discourse will therefore not be a simple straightforward communication process. Communication between people depends on the knowledge and value systems that have been acquired and learned over time and how these operate within the Discourse. All the experiences of an individual will be present. Gee (1995, unpublished) calls these experiences "situated assemblies" and they will determine the communication process in the assessment interview.

Power becomes important in Discourse because if the unstated rules of the Discourse are mastered by only one individual, that individual has a big advantage. When the rules are not fully understood the non-dominant participant only has partial control of the Discourse and will not be in a situation of power because as Fairclough (1989, p. 31) says, power is "the capacity to control orders of discourse". Usually, the more powerful individual will determine which Discourse type(s) is/are the most appropriate and this then will position the individuals within the Discourse and will also then determine which unstated rules dictate the order of the Discourse.

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As well as the individuals within the Discourse imposing constraints there are also external constraints imposed by society and its institutions. Access to the Discourse is limited, only trained assessors are able to undertake interviews and there are constraints on who can acquire the qualifications required to do them. The following extract, taken from a set of guidelines implemented by the Department of Employment, Education and Training (DEET) in Tasmania (1992, pp. 17-18) to maintain quality assessment provision, illustrates this:

> *The quality assessor must be able to demonstrate*
> - *a rigorous staff selection process and professional development strategy related to ALBE assessment and provision.*
> - *that staff must have appropriate qualifications and/or experience in the adult literacy field*
> - *that staff have at least three years experience, this should be in teaching literacy as a specialist area of skills or equivalent...*

Fairclough (1989, pp. 66-67) clarifies these constraints and states that the exercise of power introduces three main constraints within a Discourse: constraints on content, subjects and relations. If we examine each in turn we can see the subtle influence of power.

Content

During a literacy assessment only topics relevant to determining literacy needs and learning styles are discussed at length and in a certain format.

Subjects

The positions of the assessor and client are very clearly defined. The assessor is the 'expert' who has formal qualifications and an educational background and the client is a long-term unemployed person, referred by the CES because there is a perception that the client may benefit from upgrading literacy skills.

Relations

During the assessment there is a strong tendency towards politeness from both the assessor and the client. This is a true indication that there is a recognition of differences of power and degrees of social distance that are oriented to reproducing them without change.

The varying combinations of these three constraints then impact on the assessment. Questions such as:

- Who asks the questions?
- Is there a pattern of turns in the conversation?
- Who interrupts?
- What type of questions are asked?
- How are questions answered?
- What personalisation techniques are used?
- How are the questions and answers worded?
- Who does the empathising?

need to be raised so that we can more closely examine the power relationship and its

influence on the structure and outcome of the assessment Discourse.

Literacy

The main purpose of the assessment Discourse is to determine the literacy skills of a client, but defining and identifying literacy skills is extremely controversial today. Adult literacy means many things to many people. In the community at large when I state that I work in the area of adult literacy the immediate response is "Oh, you teach people who can't read and write". This general community deficit view of literacy is also prevalent in government departments and publications. In *Working Nation: Policies and Programs* (1994), the government policy writers view literacy as a quality that people either have or lack. They assume that lack of literacy is a major barrier to employment. Literacy and numeracy support are viewed as "remedial" as stated in the following extract:

> *This will be supported by access to programs, including remedial courses for literacy, numeracy and English as a second language, vocational training, community based work experience or subsidised employment. (p. 111)*

The newspapers continue this negative stereotyping of people with literacy needs and usually portray adults who cannot read and write well as *"confused, in crisis, lost souls, or carriers of some disease"* (King, 1993).

Lankshear (1987) and Graff (1987) documented these perceptions of literacy in the 1980s but they are still current in 1995. Because many people believe that literacy is an attribute that people have or do not have, they tend to view literacy as separate from its social context; the ability to read and write can be taught after which people will be able to read and write anything required. The logical outcome of this belief is that if people cannot read and write there must be a reason - probably a cognitive reason - giving rise to implications about intellectual competence. Thus the "literacy myth" that writers such as Graff (1987) have documented still continues. It follows that if people can be taught literacy skills they will become literate, and this will have both social and economic benefits, in particular these newly literate people will be able to obtain employment because lack of literacy is perceived to be a major employment barrier. Many millions of dollars of taxpayers' money are currently being spent because of the still widespread belief in this "literacy myth". I do not espouse this rather simplistic view of literacy and do not believe that increasing literacy skills is the panacea for unemployment. The following extract from the *Age* newspaper of 20/1/95, really exemplifies that increased literacy is not the answer to all social problems:

> *Momma Mia!*
> *Giuseppe the cleaner couldn't read or write and they fired him. In desperation he opened a delicatessen in Carlton which was an immediate success. Soon he owned a thriving chain of stores.*
> *"Imagine," they said, "what would you have been if you could read and write?"*

"A cleaner," said Giuseppe
Kim Taylor, South Yarra

Instead of limiting literacy to a narrow definition where a person either possesses or does not possess literacy it should be extended in definition to relate it to the whole of society. As stated in Gee (1990, p. xviii),

> *There is no such thing as 'reading' or 'writing', only reading or writing something (a text of a certain type) in a certain way with certain values, while at least appearing to think and feel in certain ways. We read and write only within a Discourse, never outside all of them. One doesn't read a comic book the same way as a newspaper, nor a physics book the same way as a legal brief.... Literacy is always multiple: there are many literacies, each of which involves control of Discourses involving print.*

Society does not consist of just one group but of many sub-groups all functioning for many specific purposes and needs. If we consider one group such as the 'Education' group it can be seen to consist of many sub-groups including primary, secondary and tertiary groups which can be broken into further sub-groups. Each of these sub-groups requires very different literacy skills. A person might be literate in the secondary school sub-group yet might not be able to write in an acceptable style for the university group and would not pass a literacy test if it was based on university requirements. Thus, there are a whole range of literacies that exist in any society: Each section of the community has its own discourse; its own jargon and rules that have to be mastered if a person is to be considered literate in that discourse.

Defining literacy thus becomes very political: On whose Discourse is the definition to be based? Which group will win? Which group is the strongest; has the most influence; is the most powerful? The definition becomes very important, because as Wickert (1993) says, *"Literacy is socially constructed and is thus a descriptive category available for the categorisation and normalisation of differing groups within the populace."(p. 30)* .

If literacy practitioners are not aware of this broader perspective of literacy then there is a danger of collusion with those who use literacy ratings as a gatekeeping process in society. To obtain funding for literacy programs certain government requirements must be fulfilled. It is important that the practitioner's philosophical view of literacy is very clear because it may conflict with that of the funding body. The needs and desires of ALBE clients must not be neglected while fulfilling the government goal of suggesting pathways and providing training.

The philosophical view of literacy that I hold is meshed within these ideas of Discourse and social context. When asked for a definition of literacy, I prefer to give the following definition that Wickert (1989, p. 4) uses. Literacy is *"using printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential"*. A definition of literacy is not something which is just written and pigeonholed to be forgotten. It becomes part of the philosophy of an Adult Literacy practitioner and influences how adult literacy is assessed and taught. My task is to use

assessment in context wherever possible so that a 'portrait' showing a range of literacies becomes evident for each person that I assess. I am attempting to know that person (Rowntree, 1991, p. 4). It is important that I now clarify what I mean by assessment because the word conjures up many different meanings within Australian society.

Assessment

Assessment according to the *Oxford Dictionary* involves an estimation of value. Clients come to the Adult Literacy initial assessment interview with a perception that I will rate them in some way. I do attempt to obtain and interpret information *"about the knowledge and understanding or abilities and attitudes of that other person"* (Rowntree, 1991, p. 4).

Rowntree (1991, p. 11) furthers this discussion on assessment by suggesting that there are five different mental activities among people who undertake assessment, and the activities relate to the following five questions:

1. Why assess? What are the effects or outcomes assessment is expected to produce?
2. What to assess? How to decide, realise or otherwise come to an awareness of what we are looking for or remarking upon in the people being assessed.
3. How to assess? To select, from among all the means we have at our disposal for learning about people, those we regard as being most truthful and fair for various sorts of valued knowledge.
4. How to interpret? When we have the outcome of the assessment what does it mean?
5. How to respond? What are we going to do with the assessment outcome?

In an Adult Literacy initial assessment, all of the above questions are pertinent to me as an assessor and it is important for me to remember my philosophical view of literacy, in particular, how it cannot be divorced from social context, if I am to provide access to meaningful assessment. Because the initial assessment involves a formative component (it is used to develop a learning program for the client) and a summative component (it is used to report and rank which course a client is able to complete) it is extremely important to know from the outset what is the purpose of assessment.

Why assess? The purpose of an initial Adult Literacy assessment

The purpose of the initial assessment that I facilitate has both a formative and summative component because of the funded nature of the literacy program in which I work. The program is funded by DEET through the Special Intervention Program (SIP) administered through the Commonwealth Employment Service (CES). Because the program is funded externally the use of funding must be justified according to parameters prescribed by DEET. One parameter that must be referred to in the written assessment report is the placement of the client on the Interim Literacy Course Matrix (ILCM). The ILCM was devised as a temporary rating scale for courses. Courses are assumed to require certain literacy competencies, known to the assessor, which are rated on a scale from one to four; and at the completion of the assessment a client's position on the scale must be entered on a form provided by the CES. (Adult Education, 1992) This sum-

mative component is important for the CES because the client's placement on the ILCM is often used by individual CES officers to denote progress. If a client does not move across or up the ILCM within a training course a CES officer will sometimes refuse further training and may have to have the ILCM explained in great detail before accepting that the client has really made tremendous progress, even though there has been no change in position on the ILCM. The new National Reporting System, which is still being finalised before implementation in 1995, should overcome these disadvantages apparent in the ILCM.

The assessment is also important for the client, as a source of feedback on just what he/she can actually do. It *"bring(s) into awareness uses of literacy in everyday life that the adult herself had discounted"* (Lytle & Schultz, 1990, p. 375). A CES officer telephoned me and stated that her 16-year-old client had believed that he could not do anything because during his whole schooling career his reports had concentrated on what he could not do. For the first time someone had written down all the skills that he had actually developed and he was amazed and proud that he could do something after all. Many clients tell me at the beginning of the assessment that they cannot read or write anything at all, but when I present tasks relating to their social contexts they are able to succeed at them. They leave the assessment interview with new insights about their abilities which often enable them to contemplate further training in a positive light. When this positive atmosphere is created, training pathways can be discussed and articulation to other training is often investigated.

The initial assessment also provides information on the learning situation preferred by the client, for example, whether he or she prefers to work on an individual basis or in a small group. This is extremely important if *"we are to foster adult learning in more informed ways"* (Lytle & Schultz, 1990, p. 369).

What to assess?

As well as the summative component, the initial SIP assessment has a formative component and I regard this as the most valuable component of the assessment. I begin each literacy assessment informally to enable me to develop a portrait of the client as a whole person. As suggested by Lytle and Schultz (1990) and other writers, if, in collaboration with the client, I can discover the client's interests, experiences with previous learning situations, reading and writing habits, perceptions of possible future learning situations and goals for the future, I have a wealth of knowledge. I am able to plan, with the client, future training pathways and possible articulation into other training programs. This information should enables the first training situation with Adult Literacy to proceed more smoothly because the tutor will be able to come to the first training session with material relating to the client's interests and goals. The information should enable the planning of a program which will enable the client to succeed and will encourage the client to persist with training.

The information that I am obtaining in the assessment thus relates to what the student knows and feels about literacy. I am interested *"not only in what the student knows*

about reading and writing, but how they feel about it and how they feel about themselves as learners" (Osmond, Barin & Partlin, 1990, p. 2).

The two macro skills of reading and writing relate to the client's knowledge. When I attempt to determine the client's stage of reading development, I try to select tasks from the client's social context so that the tasks become authentic. The reading tasks I have range in complexity from supermarket catalogues and signs to newspaper and journal articles. The client can then choose what task to read and is able to succeed usually with only minimal assistance. I am able to observe the reading strategies used, the types of text that the client is familiar with and how the client obtains meaning from the text (ALBE, 1992).

Writing skills are also assessed in the interview if the client is willing to put pen to paper (some are not). Again the client is presented with a broad range of tasks and selects something from his/her social context that will enable a successful writing outcome. The skills and strategies that I observe include fluency of script and appropriateness to the task, knowledge of conventions of punctuation, spelling strategies used, knowledge and use of a range of text forms or genres and knowledge of the communicative purpose of writing (ALBE, 1992).

Numeracy skills are not always assessed during the interview. Many clients are reluctant to discuss their numeracy skills but when it is possible to include numeracy I try to discover with the client what daily numeracy activities they are involved with and whether they have a broader understanding and application of numeracy.

The affective aspects that become apparent in the assessment interview include the two macro skills of speaking and listening, and other areas such as confidence when asked to undertake a task, perceptions of self as a learner, perceptions of self as a reader/writer, perceptions of numeracy, and goals that the client may have. All of these aspects are going to influence how the client will approach training and will enable more effective program planning to occur.

How to assess?

If an Adult Literacy assessment is to portray what it is that a client can do, and is used to place a client in further training, it is important that the assessment procedure will produce the knowledge that we have judged to be most relevant. It must be remembered that most CES clients coming to Adult Literacy have experienced many assessments in the form of traditional testing situations and may not have been made aware by the CES officer of the process of assessment as it occurs at Adult Literacy. If the assessment is not conducted in a manner to reduce nerves and tension it will not be possible to obtain a fair portrait of what the client can do. Thus, the 'how' of assessing becomes extremely important.

The assessment consists of both informal and formal situations. During the initial stages the informal mode consists of talking with the client in a participatory role to discover the social contexts that are important to the client. Through discussion it is possible to clarify with the client his/her reading habits, uses of writing, uses of numeracy

through shopping, budgeting, gardening etc., educational background, interests, fears of failure in front of a group, situation at home which will impact on training, etc. (Osmond, Barin & Partlin, 1990, p. 6).

Throughout the interview in both the informal and formal stage it is really important that the client is respected as an adult and that the assessment proceeds on a collaborative basis. As Lytle and Schultz (1990, p. 371) state, *"Adult learner participation and ownership are considered central to the learning process so that learner-centered assessment is participatory, with adults necessarily taking an active role in designing their own assessment"*. The client should also be consulted whenever anything is written down to check if there is agreement, because the written comments will eventually be placed in a file for officials to read whenever they wish.

The informal discussion process enables me to obtain a mental checklist of tasks that would seem appropriate for the client to attempt during the more formal skills sampling stage. The client is then presented with tasks to choose to read, write or problem solve and if the first informal stage of the assessment has been successful it will be possible for the client to complete almost all of the tasks so that he/she feels successful. If the client asks for assistance with spelling or hesitates completing a section of the task I usually become involved in a teaching situation so that the client is able to succeed at this section with minimal assistance. One client recently asked how to spell a word and I suggested that she use the dictionary on the table. She stated that she couldn't use a dictionary but what she should have said was that she hadn't used a dictionary for a very long time. After minimal explanation she was able to correctly locate the word she wanted to correct, and left the interview with the belief that she would be able to learn in future situations because she had so much forgotten knowledge just waiting to be accessed. A variety of tasks are presented to the client which relate to his/her social contexts. From them it is possible to form a portrait of the client's capabilities and also establish what skill areas are important for the client to develop in order to achieve his/her goals.

How to interpret?

Interpretation of the initial assessment will depend on the information obtained in both the informal and formal processes of the assessment interview and will occur throughout these processes. It is important to remember that

- the results obtained are really only current for a particular time on a particular day
- sometimes clients do not indicate their true skill level because of nervousness or other reasons. It is only when they become comfortable in a training situation after a few sessions that their real skill development is apparent.

The discussion process is interactive, one question or statement will lead to another, and a series of interpretations will occur continuously. The outcomes that are obtained are dependent on the various conditions which occur during the assessment. They also depend on the interaction between the client and the assessor.

The conditions that impinge on the assessment and the outcomes of the assessment

thus bring us back to the concepts with which the chapter began: that is, the concepts of power, Discourse, literacy and assessment and how these concepts all interrelate. All will arise repeatedly in the following chapters and have propelled my research.

CHAPTER 3: METHODOLOGY

The central ideas of 'power', 'Discourse', 'assessment' and 'literacy' presented in the previous chapter continue to be the underlying principles of this and the following chapters. They help to locate the results of the research and contribute to an understanding of the processes that occur in the assessment Discourse. This chapter gives a general picture of what actually occurred in the three assessments that I recorded and presents the procedure for critical discourse analysis that I will use as the foundation for the analysis that occurs in later chapters.

Client background

The three transcripts included in this research are the results of literacy assessment interviews with three long-term unemployed clients referred to Adult Literacy because 'they' - either the CES case manager or the client - wished to assess the client's literacy skills. The funding for the assessment and further literacy training is provided by DEET through the Special Intervention Program (SIP).

Client 'D' was a 43-year-old female, wanting to re-enter the workforce after raising a family. She was completing the last week of a short, intensive SkillShare training course which introduced her to possible employment pathways and missed one session to attend the interview. During the assessment she spoke very quickly and was anxious to be assessed at about a Year 10 schooling level. The recommendation at the completion of the assessment was that 'D' undertake two courses at ILCM level 4.2: individual tuition for mathematics to revise her skills and a small group computing course.

Client 'W' was a long-term unemployed 35-year-old male. He had been employed for 17 years in a semi-skilled job but became redundant when computers were introduced to maintain production line schedules. 'W' could not adapt to using computers because his literacy skills were not sufficient to enable him to read and input data. It was recommended that he undertake a literacy course at ILCM level 2.2.

Client 'X' was a male 24-years-old, long-term unemployed and undertaking a training course as a bricklayer. He was very reluctant to be assessed and only arrived at the interview because he had been sent a letter that stated his unemployment benefits would cease if he did not attend the assessment interview. He was assessed as being at ILCM level 3.2 and there was no recommendation for training.

Data collection process

The data were collected from transcripts of recordings of the literacy assessments. Clients were asked before the interview began if they would agree to have the interview recorded. They were advised that their name would be deleted and that confidentiality would be preserved. Many interviews were recorded but the sound quality was not of high enough standard to make transcripts of the early interviews. The cassette recorder was placed in many

positions until the most satisfactory position was arrived at, on a chair at the end of a table near both the interviewer and the client. Initially, both the client and myself (interviewer) were very aware of the tape-recorder but after only a few minutes we forgot the tape-recorder was on and only noticed it when the tape stopped.

I attempted to interview each client using the assessment procedure (mentioned in detail in chapter 2) that I use in all my SIP interviews. I started each interview with general questions to enable the client to begin to talk and to feel more comfortable before they were asked to demonstrate their skills in some way. The early questions also enabled me to complete the administrative details required to enrol the client, to find any particular interests and training needs to enable the tutor to plan a program relevant to the client's needs, to elicit information about the client's learning style and to later report the outcome to the CES. The introductory stages of the interview were also valuable because the client indicated the type of text that he/she often read and also the type of writing activities with which he/she was familiar. This information was pivotal in enabling the client to succeed in the reading and writing tasks that occurred later in the interview. I had a wide selection of reading material and tried to find a task that the client had already mentioned he/she could read. Reading texts included catalogues of supermarket specials, bottle shop specials, logos, newspaper articles, postcards, telephone messages, medicine labels, letters, more complex magazine articles and other text that the client might be able to read. The result of the reading task(s) gave an indication of the client's ILCM reading level.

The client also attempted a writing task or tasks in the interview. There was no set order of presenting either the reading or writing tasks in the interview. It depended on what the client stated he/she preferred to do first. I attempted to find a writing activity with which the client was familiar, and my file included tasks such as shopping lists, telephone messages, notes, postcards, letters, retelling stories that had been read and many other activities that ranged from the very simple to the very complex. Again, the outcome of these tasks enabled me to determine the client's ILCM writing level.

Once the client had completed reading and writing tasks, I then looked at the reading and writing ILCM levels, took into account the affective information that I had obtained and then placed the client at a level on the ILCM. If the two ILCM levels obtained for reading and writing were different I put the client on the ILCM at the lower level. For example, if the client had a reading level of ILCM 4.2 and a writing level of ILCM 2.2 I said a course at ILCM level 2.2 would be most suitable.

The interviews varied in length but usually lasted from three-quarters of an hour to one hour. (The interview with client 'X' was much shorter and lasted only about twenty minutes.) After the interviews with the three clients I transcribed the data and tried to write it verbatim wherever possible. Full stops and commas were not used. Instead, '.....' were used to indicate pauses in the conversation.

Data analysis methods

I have used many of the techniques that Fairclough (1989) uses to analyse data and have

used the three states or dimensions that he suggests to use in critical discourse analysis, namely description, interpretation and explanation. *"Description is the stage which is concerned with formal properties of the text. Interpretation is concerned with the relationship between text and interaction ....Explanation is concerned with the relationship between interaction and social context"* (p. 26).

The first dimension that I examined was "description". I grouped the data into three themes which kept occurring as I examined the transcripts, that is, the themes of institutional power, the client-assessor relationship and the SIP assessment interview Discourse. I then described the data in each theme by examining some of the elements suggested by Fairclough (p. 111). I made no attempt to analyse what was happening; I just described the activities.

The first element examined was vocabulary. I looked at whether the words used were largely formal or informal. For example, in transcript 1 the conversation can be seen to be largely informal:

248. I: Right .....okay.....so..... I'll tell them that .....you're happy with your reading and your writing you're happy with your maths.....You're still confident with your maths?
249. X: Yeah
250. I: All right ..... and that uhm..... you're not really interested in doing anything .....at Adult Literacy
251. X: No I'm pretty right

After examining the vocabulary in all the transcripts I then examined the grammatical structure. In particular, I looked at who asked the questions, how they were asked and the type of pronouns that were used. The use of particular wording indicated the attitude of the participants to each other and to outside influences.

The third element then examined in detail was the textual structure. I tried to discover how the conversation turns occurred and who was controlling the direction of the Discourse. I looked at the feedback techniques used, for example, "right", "that's good", "okay" and how they positioned the interviewer and client in their respective roles.

Identifying and describing the various elements then enabled me to begin to interpret and attempt to explain the effect of power relationships in the assessment discourse.

CHAPTER 4: DESCRIPTION OF DATA

In this chapter I describe the major themes that I have observed occurring throughout the transcript data. The concepts of power, Discourse, literacy and assessment continue to be examined but are all considered around the central concept of power. I have grouped the data into three themes:

- institutional power
- the client-assessor relationship
- the SIP assessment interview Discourse

Theme 1: Institutional power

Transcript 1: Client "X"

1. I: Why did you decide to come along X?
2. X: When I went into CES they said assessment .....something like that
3. I: Yes
4. X: They said .....come into here
5. I: Come into here
6. X: But I didn't (unclear speech) come in
7. I: So you didn't really want to come in?
8. X: No

[Break in sequence]

159. I: Is that a confidential letter or just a (client holding letter up)
160. X: It's just a letter that came to me
161. I: Right
162. X: Cause I didn't turn up to the last one (previous interview) .....cause I was at the (bricklaying) course
163. I: Yeah
164. X: So they said you'd better go to this one or your money is going to be stopped and all this

[Break in sequence]

221. I: I'm writing this down so I can .....I've got to send in some sort of .....report based on.....what you've been telling me

[Twenty seven turns later]

248. I: Right .....okay.....so..... I'll tell them that .....you're happy with your reading and your writing you're happy with your maths.....You're still confident with your maths?
249. X: Yeah
250. I: All right ..... and that uhm..... you're not really interested in doing anything. ....at Adult Literacy
251. X: No I'm pretty right

The above extract from the interview with "X" and the following extract from the interview with "W" show evidence of the influence of institutional power in the assessment discourse. The use of particular wording indicates the attitude the participants in the interview have towards external powers or institutions and how institutions influence behaviour in the assessment discourse. Very necessary words such as pronouns, for example, the word 'they', reveal a great deal.

"X" uses the pronoun "they" in turns 2, 4 and 164 to refer to the government institution, the CES. "X" has given the CES an identity as a person. No one person at the CES is referred to; instead, all the people working for the CES have become the corporate identity "the CES", "them" and "they". No one individual is responsible for any action; instead it is "they" who are responsible; very evident in the perceived threat stated in turn 164.

"W" continues this association of an institution or corporate identity being a person, as shown in the following extract:

Transcript 2: Client 'W'

122. I: No no .. so uhm...why did you decide to come along ..here?
123. W: Well I've got to come through youse
124. I: Uhm
125. W: to get on to ...Jobstart or something
126. I: Oh right
127. W: first..
128. I: right
129. W: because they pay me
130. I: Yeah
131. W: to be at like if I get that job they pay me for the next six months or something
132. I: Yeah
133. W: so I had to come through youse
134. I: right

"W" indicates that he is only at the assessment because "they" pay him, evident in turns 129 and 131, and perceives that his attendance at the assessment interview is related to his Newstart allowance. The interviewer also unconsciously has accepted this corporate CES personality which is evident in turn 248 with "X". "I'll tell them that ...." The interviewer is not going to send a report to an individual, it is going to be written for "them".

Other evidence of institutional power becomes obvious if we now examine the 'obligations' that influence behaviour. These are indicated by the use of modal auxiliaries such as have to, have got to, should, etc. These types of modality place the CES in an authoritative position with respect to what must be done. "W" says in turn 123 "Well I've got to come through youse", and "I" says when speaking with "X" in turn 221, "I'm writing this down so I can .... I've got to send in some sort of ..... report based on what you've been telling me". "X" too feels this obligation to behave in a certain way, as evident in turn 164, "so they said you'd better go to this one or your money is going to be stopped and all this".

The interviewer acknowledges the unseen influence of institutional power at the beginning of each interview or early in the interview when she asks the question; "Why did you decide to come along?". This is an open ended question and could elicit any response, but for both "W" and "X" the response indicated that "they" had a very big influence on attendance and participation in the assessment interview.

The above example statements are not made as opinions in the interview but are stated as facts, and imply that there are certain institution rules which must be followed or there will be certain consequences. There is a general tone of resignation which implies that there is no point in arguing; everyone will do what is expected.

Theme 2: The client-assessor relationship

The power relationship between the assessor and the client becomes evident if we examine the following in the assessment:

(a) the relational values of vocabulary - the use of "we", "you" and "they"; are these used to control the direction of the interview
(b) the turn-taking system - who asks the questions, and the response if any
(c) feedback techniques - responses that enable the power relationship to develop

(a) The relational values of vocabulary

The assessment interview with "X" is a very difficult one because of his reluctance to be interviewed. He perceives that there is an obligation to attend and to participate to ensure that he continues to receive his Newstart payment. To overcome this reluctance the interviewer uses very specific vocabulary in the following extract.

Transcript 3: Client "X"

7. I: So you didn't really want to come in
8. X: No
9. I: Right, right .... So ah ..Did they tell you what to expect?
10. X: No
11. I: Well maybe if I tell you what happens. We have a chat... and then... uhm...while we're talking I try to find out...what you're interested in
12. X: right
13. I: and...uhm....if..if you think...you would like any...any tuition in improving your writing or your reading or your numeracy
14. X: Yes
15. I: if you want to have any improvement in those areas .... or.. you might think ....that ... you're okay in those areas
16. X: Yes
17. I: and that's the thing that's uhm .. usually .. uhm .. some of them anyway explain...why ..you come. It's not a test
18. X: Yeah
19. I: It's ... If you, if you want to you don't have to do anything if you don't want to ..
20. X: No
21. I: uhm.. but if you, if you would like to ...uhm...do some of the things that I suggest, I might ask you ... you know .. if you were comfortable reading the newspaper .. read something from the newspaper ...
22. X: Yeah
23. I: Just to find out.....where you're at with your reading and writing.....
24. X: Where I'm at

The use of pronouns

In turn 5 the interviewer attempts to develop rapport with "X" and does this by using

very inclusive language that aligns her and "X" on the same side. She says "We" have a chat, not "you and I", uses "we're" and attempts to show that "X" has a very large input in what will happen. She returns ownership back to "X" and attempts to empower him by using terms such as "your" and "you're" in turns 11, 13 and 15 to indicate that it is "X's" skills that will be discussed, if he wants to. She is attempting to make the interview appear worthwhile and of value to "X". Client "X" begins to show some positive response and changes from his very short, one-syllable responses to one in which he includes himself and uses the very personal pronoun "I", in turn 24. This indicates that he is beginning to see that the interview is for him as well as for the CES, and that it could be of some possible use to him.

The interviewer uses a similar technique in her discussion with client "W", which can be seen in the following transcript:

Transcript 4: Client "W"

81. W: but ah....apart from that everything's all right I'll work anywhere
82. I: Right
83. W: anywhere if it's not paperwork
84. I: Right
85. W: I'll work anywhere
86. I: Okay
87. W: but the trouble is everything's book work
88. I: Well there's .....a minimum amount of writing that you've got to do now isn't there
89. W: Yeah
90. I: in everything

The interviewer is attempting to maintain equality between the client and herself and is using a counselling technique to maintain agreement and show she understands the client's dilemma because it is also a universal dilemma. In turn 88 "you've" indicates that everyone is having the same problem, including the interviewer. As well, she is keeping her responses short and supportive throughout this exchange to enable "W" to state what he thinks he may require in the area of skills development.

(b) The turn-taking system

Who asks the questions?

At the beginning of each interview, the interviewer uses a similar opening question which is open-ended and allows discussion and information gathering to commence. It is a very directive question and enables the interviewer to set the focus of the interview and to begin to determine the client's needs. If we now examine the following transcripts the pattern will become obvious:

Transcript 5: Client "D"

[There is some untranscribable conversation in which the interviewer asks the opening

directive question and "D" responds that her friend mentioned Adult Literacy.]

1. I: So did she tell you what to expect?
2. D: No (unclear speech) Then I did go with her she had to go and do it on her own.
3. I: So what sort of things are you expecting to happen now?
4. D: Well practically I want to do an English and Maths course I want to get assessed on where I'm at with my Maths and English
5. I: Right
6. D: For future studies or whether I actually need to brush up on them for getting a job
7. I: Right So what sort of uhm...jobs are you looking for
8. D: I haven't gone into that at the moment
9. I: M'm m'm
10. D: I'd like waitress sort of work
11. I: M'm M'm
12. D: or things like that but .. uhm...
13. I: Have you ever had any..any sort of work? What sort of work have you done?
14. D: Waitress work when I, 24 years ago
15. I: So you've been having a family
16. D: Them, they've got married and .....
17. I: Yeah
18. D: but then now I'm going back into the workforce or trying to because I've uhm..all my children's grown up
19. I: Yeah
20. D: And my youngest son's 18
21. I: Yeah
22. D: and I've been doing a uhm..a course out at Bridgewater SkillShare
23. I: Oh right
24. D: I'm still on that course
25. I: So what are you doing there?
26. D: I've just got the day off, the afternoon off
27. I: M'm
28. D: I'm doing a work options course
29. I: Oh right

In these 29 turns of conversation the interviewer has allowed "D" to make the largest contributions to the conversation and only intervenes in the conversation in turns 1, 3, 7 and 13 with very direct questions. In turns 1 and 3, "D" responds willingly but in turn 8, "D" indicates reluctance and unwillingness to answer the question but seems to reconsider and answer in turn 10. She appears to be wanting to maintain her privacy/control in the situation but decides to accept the assessment format with "I" in control by finally answering in line 10. The interview technique that "I" is using enables "D" to develop confidence in the interview situation and she gradually begins to relax. Throughout the one hour interview with "D" all the questions are asked by the inter-

viewer and the closest that "D" comes to asking a question is in the statement "And I'd like to also see what sort of avenues you can offer me here like say to go out to what sort of things might be available". However, the interviewer is unable to answer this statement/question because "D" does not allow the interviewer to speak because she is too busy talking and elaborating.

The interviewer continues this pattern of questioning with client "X". In transcript 1 turn 1, the interviewer asks the usual opening question and "X" immediately responds. Again, throughout the much shorter interview with "X" all the questions are asked by the interviewer except for "X" questioning why the CES sent him for an assessment: for example, in

"and they just said .... oh come around that's all .....why?"

and towards the end of the interview

"Now they send me out another one (CES letter) .....what's going on?"

Client "W" begins to speak almost as soon as he begins the assessment and relays a large volume of information without any specific questioning. It transpires very late in the interview that he has already been assessed by Adult Literacy and was hence more comfortable in revealing his wants. The specific opening question that was asked in the other interviews was only asked after "W" gave a great deal of information on his previous employment background.

The interviewer continues to ask these very specific direct questions as the interviews progress to obtain information about reading and writing habits. These questions are always asked in many different ways and are never asked only once:

Transcript 6: Client "X"

25. I: I don't know what sort of training you ... you've done?..... elsewhere. Have you done any with SkillShares or anything like that?
26. X: Yeah We've done ....ah....doing resumes and all that kind of stuff

[27 turns later]

53. I: So what sort of courses have you done with SkillShare?
54. X: Ahh...We done a small papers course
55. I: Yeah small papers?
56. X: Yeah.... Just like ..... we made up a .....like .....just doing it for ads..... editing and all that kind of stuff
57. I: Oh yeah, oh yeah

Turns 25, 53 and 55 are all specifically trying to discover what type of training "X" has completed and what type of literacy skills the training may have involved.

Again the direct questioning continues during the interview with "D". The interviewer has to keep repeating the intent of questions to try to maintain direction in the interview with "D".

Transcript 7: Client "D"

[relating to SkillShare course]

39. I: Oh right and so how are you going with all that Can you?
40. D: I've managed it all right
41. I: Right

[another attempt later]

53. I: Yeah ..... and so what sort of do you have to do much reading and writing for that course?
54. D: Oh
55. I: that you're doing
56. D: Its 50/50 but we go out to a lot of like TAFE centres

[55 turns later]

111. I: Yeah Yeah right So what sort of What I'm trying to work out is what sort of reading do you do. What sort of things do you read?
112. D: I don't read at all much
113. I: No Do you read the newspaper would you look at that?
114. D: Yes I don't buy newspapers but I read like ..... those papers you get in the letterbox.

The interviewer keeps trying to discover the reading and writing habits of "D" by continuing to ask direct questions in turns 39, 53, 111 and 113. She discovers that "D" says she can read newspapers and reads material placed in the letterbox. The interviewer is finally beginning to obtain a portrait of "D's" literacy skills.

(c) Feedback techniques

Another aspect to examine in the client-assessor relationship is the use of feedback techniques to build confidence and rapport, whereby the interviewer responds in such a way as to encourage assessment information from the client. These techniques are similar to those used in counselling sessions which simulate egalitarianism and help to personalise the interview but always have the underlying motive of gathering information. The interviewer no longer uses obvious power tactics to retain control but the discourse is still proceeding according to a formula unconsciously determined beforehand.

The interviewer uses common techniques in all the three interviews. To maintain the flow of information and to indicate interest she replies with "right", "okay" quite frequently in all three interviews. This is evident in transcript 1 turn 248, and in transcript 3 she is agreeing with the client and attempting to mollify "X" who had not wanted to be interviewed. In transcripts 2 and 4 she uses "right" frequently to indicate she is listening and understanding what is being said.

Transcript 8: Client "D"

68. D: we go out to lunch in the after the morning session of training and uhm get our certificates cause we get a first aid St John Ambulance certificate
69. I: Oh right, and did you get that?
70. D: Yeah...h
71. I: Oh that's great isn't it
72. D: I passed that Yeah

73. I: Oh that's good And so uhm did you have to do writing and reading for that or was
74. D: Examination lots of questions but the morning before we did them the officer went over it again
75. I: Oh good
76. D: And then we had to do a a prac on a dummy
77. I: Yeah
78. D: and then we had to do some own personal bandaging on another human being
79. I: Oh right Oh that's good that's useful to have if you're going for a job or something
80. D: Yeah.....

In the above transcript the power relationship between the interviewer and client "D" is very apparent as being unequal. When a conversation between equals occurs, the use of evaluative terms and judgements is kept to a minimum; the dialogue develops through interaction and if one participant begins to evaluate what the other is saying, the flow changes and soon becomes one-sided, particularly if the statement made is evaluated in a negative matter.

The interviewer is being positive and encouraging in turns 71, 73, 75 and 79, yet the exchange highlights the unequal sharing of power. The interviewer assumes the right to make evaluative statements, "Oh that's great", "Oh good" and "Oh that's good that's useful to have". The evaluation has definitely been made in the last phrase and the interviewer has indicated her approval; it's good to have because it will be useful. "D" accepts the judgmental aspect of the responses and the right of the interviewer to evaluate and indicates her acceptance of the approval by saying "Yeah". The stress of the word is not captured in black and white, however, if the tone and stress of the spoken word could be captured in print it would indicate that "D" is basking in the approval of the interviewer. The interviewer attempts to use the same technique with client "X" but it is not so successful because "X" is much more concerned about why the CES has decided to send him to ALBE. "X" states that he likes doing crosswords and the interviewer attempts to build rapport:

Transcript 9: Client X

84. I: I'm hopeless at crosswords..
85. X: Oh they're pretty easy
86. I: particularly those cryptic ones
87. X: Yeah
88. I: You know .... do you do those?
89. X: I've done a few of them
90. I: a few ..... so you must have a good knowledge of words to be able to do those
91. X: Yeah .....probably the only reason I think they've done this is because I missed a bit of school when I was younger ..... cause I had leukaemia

"X" indicates that he is really not interested in developing rapport or anything else, he is very abstracted and only interested in determining why he is there. He is not at all interested in the power relationship between him and the interviewer. In turn 91 his reply is one of disinterest, "Yeah", and dismissal, he changes the topic and immediately returns to the question of why he is at the interview.

Transcript 10: Client "W"

1. W: I used to work out at (XXX) about three years ago..I got redundant..
2. I: Oh right
3. W: technology took over
4. I: Oh right
5. W: I was up there nearly ....17 years
6. I: That was a long time wasn't it
7. W: Yeah... I've been lucky in some ways....more than other poor buggers some people can't get jobs I've just been lucky in jobs here and there
8. I: Yeah
9. W: type of thing
10. I: Yeah but they're only short
11. W: Yeah about five months ..
12. I: Yeah
13. W: three and a half months a cleaning job just relief work it was
14. I: Yeah .. so what were you doing for the 17 years
15. W: A grinder attendant at XXXX
16. I: Right.....
17. W: A boring old job but it paid well
18. I: Yeah
19. W: Before I left I was on about $36000
20. I: Oh really
21. W: before I left that was about three years ago now they're on about $40000 now
22. I: Gee

The interviewer is able to develop rapport with Client "W" from the very beginning of the interview, with "W" accepting the unstated roles without question. He responds and develops the conversation and accepts her evaluative statements. He commences the interview with statements to indicate that he is someone of importance, once of perhaps equal status, because he was earning large amounts of money in a job held for a long period. The interviewer values his statements by replying appropriately in turns 20 and 22 to reinforce his belief. However, the interviewer unconsciously begins to undervalue "W" by stressing that his employment since his last well-paid job has been for "only short" periods, in turn 10. She has kept her power and position by judging his employment as wanting; "only" is used as a qualifier to give a negative response to his positive statement in turn 7.

Theme 3: The SIP assessment interview Discourse

The literacy interview is occurring for a specific purpose: to fulfil institutional, assessor and client needs. It becomes an entity in itself, directing the structure of the discourse. In all interviews the structure proceeds from the very general to the specific. In the general discussion the pattern of questioning and answering is based on the interviewer asking a general statement and then the client answering with 'wordy' answers which can be structured to enable the client to be portrayed in a very positive light. In transcript 5, "D" is given the opportunity to speak at length about what she is doing and what she has done in the past, with this pattern continuing for many turns of conversation. "D" reveals her work interests and training, enabling the interviewer to begin to build up a portrait of her interests, skills, learning styles and possible pathways for future training. This pattern is again apparent in the initial stage of the interview with client "W". In transcript 10, the client reveals his past job experience, his feelings towards technology - "I got redundant" then "technology took over" - and his current aspirations towards employment, so that the interviewer is again able to begin developing a portrait.

In the interview with client "X", the process is much more difficult for the interviewer because the interview is not quite moving in the accepted format. The outside institutional power is interfering with the internal power of the interview structure. The interview structure of moving from the general to specific with the client speaking freely is not really occurring because the client is unsure of why he should be at the interview. The interviewer is uncomfortable with the situation and uses lots of pauses, uhms and ahs in attempting to follow the usual format. This is particularly evident in transcript 3 in every response that the interviewer makes to any statement that "X" makes. The interviewer is unable to begin the process of developing a portrait of the client's interests and skills. It is not until turn 25 in transcript 6 that the interviewer is able to begin to follow the usual pattern. The hesitancy disappears and the information gathering commences.

The interviewer is not the only one who uses the interview discourse for specific purposes. The client also comes to the interview with stated and unstated needs. Client "D" begins the interview stating "I want to get assessed on where I'm at with my Maths and English", which if taken literally indicates that she would like to know her ability in these areas. If we examine the transcript below we can discern some unstated needs of "D".

Transcript 11: Client "D"

397. D: I've got, I've got . . . . . don't know if we're supposed to have them but . . . the man who's doing community . . . personal development brought them in , XXXX gave them to him to bring in we sought of snuck them and took them . . . don't know if he's supposed to hand them out but he stuck them under the bench so we took them
398. I: Oh right
399. D: that's what we did for our our our exam last wee
400. I: Oh right
401. D: last week

402. I: oh it looks like you can do uhm
403. D: see they're percentages see I got the right answer but the decimal point was in the wrong place
404. I: Yeah
405. D: I don't know if that one's wrong what I put the answer there I don't know how it went
406. I: No because that was that's 3% and that's 1 and. . . a bit . . . and another whole % which is 4
407. D: well I just added the 3 and the 25 automatically
408. I: Yeah cause that's 1 and a bit
409. D: and fractions and all that
410. I: well your fractions are pretty good aren't they
411. D: XXX helped me with that one
412. I: look at this one. . . . . changing the denominator . . . . . you might almost be better doing one-to-one instead of going into a group
413. D: that's where I was doing all the adding up . . . . . and then I found out I was supposed to be subtracting them
414. I: Yeah . . . . . Oh sub. . . . . oh look at the well no wonder you couldn't see it it's a pretty hard sign to see isn't it I automatically added it up too cause you can't see the sign
415. D: It's got at the top subtraction and the rest
416. I: Yeah
417. D: she said at the beginning all the rest except for those are
418. I: subtraction but I can see how you'd forget you'd be doing them then you'd forget
419. D: cause all the rest of the other page was all addition
420. I: Yeah well I it looks like you can do most uhm. . .
421. D: see you've got hours and minutes and you've got to convert them into the right. . . . hours and minutes
422. I: uhm
423. D: It wasn't . . . . . I got that right
424. I: Yeah Can I take a copy of it to put in the file and I'll show the tutor . . . . . or do you want to bring it yourself
425. D: I can bring it back it doesn't matter
426. I: Yeah . . . . well I'll put that down because . . . . . that shows you can really do an incredible amount I mean look at this how complicated these are. . . . . and you can do all of those the long multiplication and that and multiplying hours and minutes . . . . . by nine . . . . . and then
427. D: and then we three minute speed tests and . . . . . you've got to do . . . . . this card . . . . . writing how many you've got at least sixty is it sixty words in three minutes
428. I: Right

429. D: to be on the average of normal average . . . . . intelligence
430. I: Wow
431. D: I think that's
432. I: and what's average normal intelligence that's a . . . . pretty . . . . sort of subjective
433. D: 30
434. I: thing isn't it
435. D: that's right you've got to have 60 words in three minutes well we went up to . . . . . you know we've got this graph and you went up there and I was about up here in 70 or something . . . . . they said you're too good for that . . . . so you have a second on the same day
436. I: Uhm
437. D: and that was even better so . . . . she said you've got to do. . . . . the . . . the B one the B one was harder . . . than the A one . . . . . and I was up here with that one and I was way down here . . . . . a lot more complicated
438. I: cause I suspect you could probably do . . . . . a lot of the Year 10 stuff too. . . .
439. D: cause I have a lot of trouble with . . . . uhm . . . . . say 6 x 0s or 0 x 6s
440. I: yeah most people would . . . . . .
441. D: and that's where I went wrong because . . . . . .
442. I: Uhm
443. D: I remembered . . . . when I looked at it today . . . . I forgot the one . . .

This section of transcript occurs as the interview nears completion. "D" reveals that she would like the interviewer to confirm that she is better than average at her maths. She brings from her bag the results of the test she did at SkillShare and also states that "they said you're too good for that". "D" is attempting to ensure that the interviewer reports that she is at a high level of numeracy. She wants the interviewer to be able to answer her original question of where she's at but is making sure that the answer is one that will be acceptable to her. "D" wants to be able to say that she is at a Year 10 level of skills. Thus, the assessment Discourse is enabling "D" to try to achieve some of her goals as well as enabling the assessor to obtain the relevant information that is required.

The grouping of the data into these three broad themes enables us to look at what is really occurring and the next chapter will continue this analysis in much more detail.

CHAPTER 5: DATA INTERPRETATION

It is extremely important as I begin this chapter to reiterate that I agree with authors such as Gee (1990), Fairclough (1989), Friere (1970) and Wickert (1993) that literacy cannot be looked at in an isolated situation, divorced from social relationships and social practices. The "situated assemblies" (Gee) or "member's resources" (Fairclough) that both the assessor and client bring to the assessment have a profound effect in determining power relationships and hence the ALBE and SIP assessment Discourse. Thus, the tran-

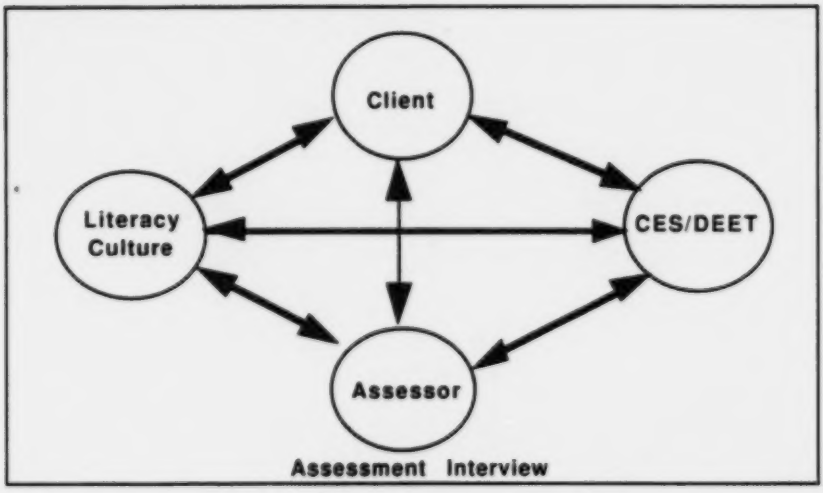
script data alone are not sufficient to explain how the power relationships influence the assessment Discourse. However, the transcripts do indicate that there are changes in power relations throughout the assessment and that the power relationships then affect the progress of the assessment.

The main participants that I have identified in the assessment Discourse are:

- the assessor
- the client
- the corporate client, the CES
- the Adult Literacy culture - including theory and practice.

The following diagram indicates the relationship between the four participants and begins with the power relationships balanced.

BALANCED POWER RELATIONSHIPS

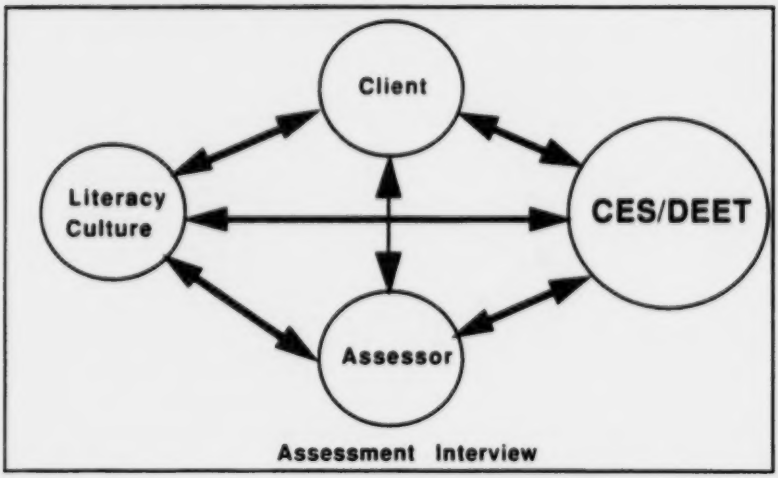


The arrows indicate that there is a balance of power between all participants and that this balance also influences the assessment. If the situation was ideal each participant would have the same degree of influence as the other. The assessor, who brings along to the assessment a variety of situated assemblies which include the influence of family, education, work culture and society, would be relating equally to the client who is also bringing along many different situated assemblies also determined by family, education, work and society. The invisible impact of the CES and the literacy culture would also impact on the assessor and client but would not dominate what was occurring in the assessment. Such a balance of power is an ideal situation and I did not find any evidence to indicate that it occurs. Instead, throughout the assessment interviews the balance of

power constantly changed so that one participant temporarily became more influential than the others.

In the interviews when the corporate, invisible client, the CES, was the predominant power influence, the assessment information gathering process became stilted. The following diagram indicates this relationship.

POWER IMBALANCE IN FAVOUR OF CES



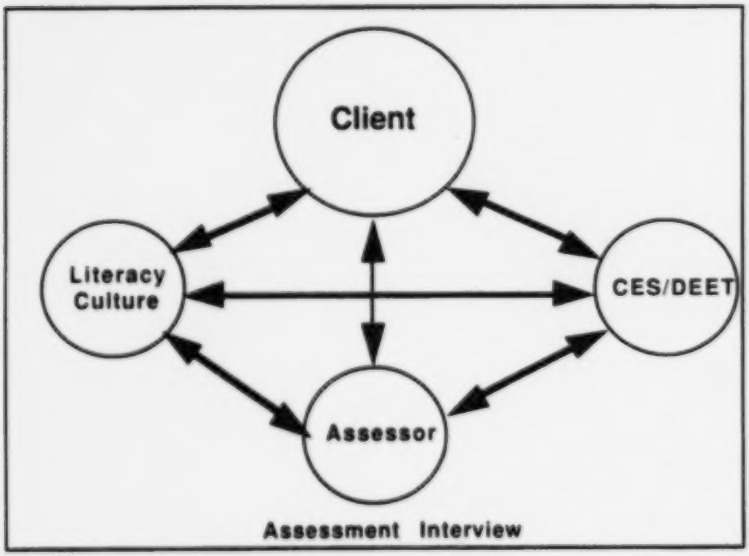
In the interview with Client "X" this was the power relationship. Client "X" very clearly came to the interview with a variety of situated assemblies. He believed that his literacy skills were adequate for his specific purposes and that he was being forced to attend the assessment. This is very clear in transcript 1: "So they said you'd better go to this one or your money is going to be stopped and all this". Both the interviewer and the client seem to believe this threat because the assessment continues even though the client does not want to be assessed, the interviewer stating, "I've got to send in some sort of . . . report based on what you've been telling me". They both believe that the corporate client requires a written outcome from this assessment and seem to believe that if there isn't one there could be a financial disadvantage. It is also very difficult for the interviewer to obtain an accurate portrait of "X's" skills because he is unwilling, and uninterested in revealing his literacy skills because he believes that they are sufficient for his needs. The threat to cut off "X's" payments by the powerful corporate institution overrides everything: he barely listens to questions and keeps wondering why "they" sent

him. For example, in transcript 9, ". . . . probably the only reason I think they've done this is because I missed a bit of school when I was younger . . . . cause I had leukaemia".

The progression of the assessment discourse is stilted, with the interviewer uncertain how to continue; note the pauses and uhms and ahs in transcripts 1, 3 and 9. The written outcome of the assessment is thus based on only the very limited information that "X" is willing to reveal about his literacy skills. The extreme power imbalance has worked to disadvantage client "X", the assessor and the written report that the CES requires from each assessment. The corporate client is perceived as a threatening institution influencing the outcome in a very negative way.

Clients "W" and "D" also had been advised that there is some link between their unemployment payments and literacy training but they do not seem to have the same negative reaction to this display of corporate power. They merely allude to the CES power in their general conversation. For example, "W" says in transcript 2, "Well I've got to come through youse". He then continues with the assessment and very clearly identifies that he believes that he could improve his literacy skills and says in transcript 4, "the trouble is everything's book work". The negative effect and influence of the CES is very minimal for him. He perceives from his previous employment experience that there is a clear link between literacy skills and employment. "D" too minimises the influence of the CES power and believes in this link between employment and literacy, stating in transcript 5 when she is referring to her level of English and Maths," . . . . whether I actually need to brush up on them for getting a job". Both "D" and "W" are wanting to participate in the assessment because they can see a positive benefit for themselves and thus the power balance changes for them. The diagram changes: (see page following) with "D" and "W" wanting to have some direction and influence in the assessment Discourse. "D" states at both the beginning and end of the assessment that she wants to know "where I'm at" (transcript 5) in ability but also that she wants to have it confirmed that she is above average (transcript 11), and brings along test results to show this. "W" states that he wants to improve his spelling and writing because that is what he perceives that he requires to obtain employment. Both clients are willing participants and because they believe that they will obtain something to their advantage, they effectively change the power balance to advantage themselves in different situations in the Discourse. In collaboration with the assessor they decide what they are going to reveal in the assessment and whether they will permit the assessment to continue. We see evidence of "D's" power when she indicates that "I haven't gone into that at the moment" (transcript 5) when she at first decides that she doesn't want to answer the assessor, but then later reconsiders.

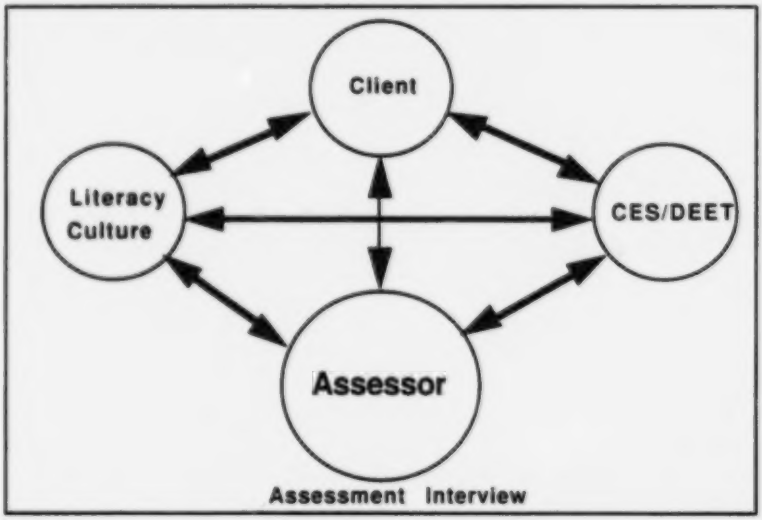
POWER IMBALANCE IN FAVOUR OF CLIENT



"D" has a big influence on the progression of the Discourse because even though she is answering the questions of the assessor she is also deciding on how to answer them. She has the choice of answering with very short or very wordy statements or refusing to answer the question. "W" has occasions during the assessment when the power balance is in his favour, particularly in the early stages of the assessment. The interviewer does not really ask any questions initially, "W" decides to speak and direct the information that he deems relevant for the interviewer to know. He reveals his past employment history and his beliefs on the importance of literacy (see transcript 10).

The power balance does change in favour of the assessor and it would be naive to believe that the assessor did not have any power in the interview and that she did not influence the Discourse process. The assessor has brought to the assessment her various situated assemblies and what she believes is the purpose of the assessment. Her situated assemblies have positioned her to follow certain procedures. The influence of her family, schooling, tertiary training, work practices and knowledge of literacy theory and practice ensure that she assesses the client to obtain the required outcomes. She assumes the asymmetrical right "to ask questions, request action" and that the clients have the "asymmetrical obligations to answer, act and explain" (Fairclough, 1989, p. 157) when she asks questions. The next diagram now shows this imbalance (see page opposite):

POWER IMBALANCE IN FAVOUR OF ASSESSOR

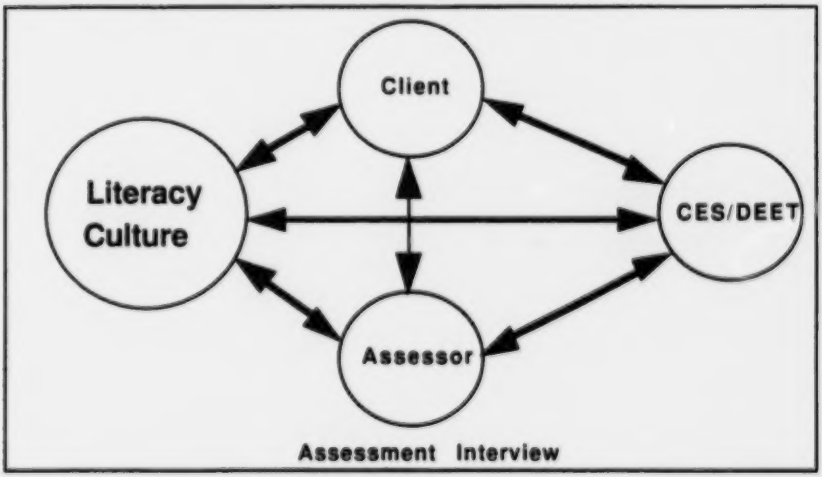


This assumption of power enables the assessor to ask all the questions asked in all the interviews and enables her to then direct the assessment Discourse to fulfil the purposes she requires. These assumptions that she makes are accepted by all participants and indicate that they typify the unspoken ideology current in society. Unconsciously she uses "synthetic personalization" (Fairclough, 1989, p. 217) to establish rapport between herself and the client. This technique applies social scientific knowledge for purposes of obtaining bureaucratic information (Fairclough, p. 211). The statements and comments she makes in the transcripts are generally supportive and positive, such as "right", "uhm", "that's great", and enable the information gathering process to continue. They would not be used in the same manner if the participants were of equal status. She continues to control the Discourse by directing the questioning so that it changes from open-ended questions such as "Why did you come along today", which are asked at the beginning of the assessment, to the very closed questions, such as in transcript 7, "what I'm trying to work out is what sort of reading do you do. What sort of things do you read?" The closed questions occur in the later stages of the assessment after the client is more comfortable and confident and when the client appears more willing to reveal his/her literacy skills. The assessor is very much in control. If the question is unanswered she persists and asks the question again and again to enable her to obtain the assessment information she requires. In transcript 7 she asks "D" in four

different ways about her reading habits until she actually discovers what "D" reads: "but I read like . . . . those papers you get in the letterbox". If the power relationships were equal the assessor would have changed the topic when "D" stated "I don't read at all much" but she ignored "D's" reply and kept persisting with the literacy question until she had an acceptable answer.

The Adult Literacy culture (ALC) is also a participant in the power balance (see the following diagram).

POWER IMBALANCE IN FAVOUR OF LITERACY FIELD



The three other participants - the assessor, the client and the corporate client - all believe in the assessment process and that it will rate skills in some way (Rowntree, 1991). This social belief then predisposes the power balance in favour of the ALC Discourse. The literacy assessor and the CES staff have been trained to become familiar with literacy theory and practice in relation to the assessment Discourse. ALBE academics and practitioners have published numerous texts to ensure that there is wide-spread knowledge of how to conduct an ALBE assessment. As noted earlier, however, not many texts discuss power in assessments. The practical journal *Good Practice*, which is read widely in the Adult Literacy field, has devoted two issues to the topic - issues 7 and 17. DEET (Osmond, Barin & Partlin, 1990) and AMES (Navara, 1992) have published large manuals with assessment tasks, questions and answers to ensure that the accepted Discourse structure is followed and most in the field follow this structure. It is important to reflect on this structure and not to accept it unquestioningly because as Fairclough says it is

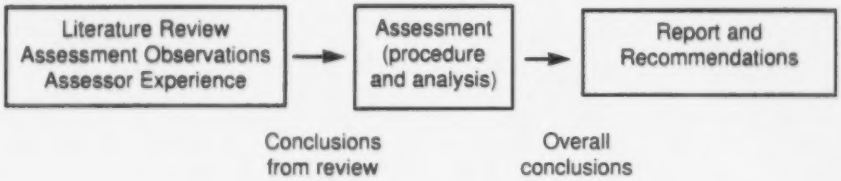
using a technique of "synthetic personalization" which has been grasped by many bureaucracies to obtain selective information. The technique enables one person to be the 'expert' and to have an asymmetrical balance of power resulting in the participants, because of their previous learning experiences at school and in the wider community, deferring to the expert.

The ALC structures the assessment Discourse with the clear purpose of obtaining literacy knowledge. Even when a person does not want to collaborate in the assessment, for example client "X", the discourse structure still enables the assessor to obtain information about literacy skills. The assessor knows the general type of material that "X" says he reads and also the type of writing genre with which "X" says he is familiar. When the process becomes collaborative, as in the cases of "D" and "W", the Discourse structure enables very detailed information to be collected. As the assessment proceeds with client "D", the assessor discovers "D"'s vocational interests, her past school learning experiences and her current level of literacy and numeracy development. All this occurs as the pattern of Discourse is followed from general to very direct questioning. Client "W" also participates collaboratively and follows the ALC assessment Discourse structure. The assessor obtains very detailed knowledge about "W"'s work experience and the role literacy had and is likely to have in his workplace.

This changing balance of power is occurring continually within the literacy assessment and is therefore going to influence how the actual individual assessment Discourse operates and progresses. In turn, the assessment Discourse is going to become a major participant in this interaction. Each participant knows that there is a specific purpose for meeting; thus, the very act of meeting for an assessment will then position all participants to behave in certain ways. An assessment *will* occur, but how it occurs will be dependent on the changing power balance. As the participants interact new situations develop, the assessment continues and becomes the catalyst for further interaction. This interaction in turn again influences the assessment Discourse. The information gathering process will be influenced by which participant is the predominant power. When the CES is predominant, less assessment information is gathered but more is gleaned about client frustration with the system. When the client is predominant the information is more general and sometimes very personal ("D" gives information about her family) but still enables the assessment to continue. It is when the assessor becomes the dominant power that very specific information is obtained about literacy skills because the questioning becomes more direct and specific. Yet throughout the whole process the assessment Discourse is operating unseen and is pushing all participants forward in this information gathering process.

CHAPTER 6: CONCLUSION

Research conclusions



The above diagram illustrates the process that I undertook for this research project. I began the research process because of observations that I had made when undertaking SIP assessments. I wanted to understand what was occurring in the assessment because my experiences and observations indicated that some assessments were much easier to undertake than others, and that the recommendations from these 'easier' assessments were readily accepted by all involved in the process.

The literature review enabled me to read widely and to clarify my thoughts so that I had a better understanding of concepts of power and language, assessment and literacy. I was then able to examine my assessments with a heightened awareness so that my unconscious actions became conscious. I studied the transcripts of the three conversations and saw patterns that were not obvious to me before I began the literature review.

It is very clear from the transcripts that the use of language and the situated assemblies that each participant brings to the assessment positions the participants in the interview and causes changes in the power balance. I identified the participants as the assessor, the client, the CES/DEET, the literacy field and the assessment itself.

The effects of the power imbalance were varied and were both positive and negative. The fact that the assessor, myself, asked most of the questions did have some positive outcomes: The assessment process flowed, a portrait of what the client could do was obtained and training pathways were planned (for two of the clients). The analysis indicates that the language used by the assessor helps to determine the relationship between the assessor and the client. Questioning techniques need to be examined so that the client has more input in determining the direction of the information gathering process. Questions need to be open rather than closed so that the client says what he/she might want to say rather than says what he/she expects the assessor wants to hear. The positive responses that the assessor makes throughout the interview, "that's great", "good", etc. , are now evident as part of the power positioning procedure. Each positive response ensures that the client knows what the assessor approves of and encourages the client to say what he/she believes the assessor would like to hear.

The power imbalance was also in favour of the CES/DEET and again it was both positive and negative. The three clients interviewed were encouraged by the CES to

undertake literacy interviews and two of the three decided to access literacy training after the assessment interview. The process was positive for two of the clients, because the clients became aware of training opportunities and knew they would be supported financially if they decided to undertake training. Before the Special Intervention Program many clients were not able to access literacy training as readily because the literacy program delivery was supported on a very narrow funding base. The negative effect of the CES power imbalance does need to be addressed. Client "X" did feel tremendous pressure to attend an interview even though he perceived that his skills were adequate for his vocational requirements. All CES/DEET staff should be encouraged to undertake training on how to identify the literacy needs of clients and how to use language which is encouraging but not threatening so that clients are able to be part of the decision making process when the decision is made to access a literacy assessment. Some CES officers do have an awareness of the power of language: Two of the three clients interviewed did decide that they would participate in the assessment process because of the encouragement they received from their CES officer. However, the responses from client "X" indicate that there is room for further awareness raising for some officers.

The literacy culture (publications, training institutions and literacy employers) has also been shown to be a major participant in the interview. It is the major source of information for practitioners and should encourage practitioners to raise their awareness of what is occurring in literacy assessments. There should be more publications and training on the effect of language in positioning participants in power relationships.

If literacy practitioners become more aware of the effects of language and prior experiences and their relationship to power, they will be able to meet clients in a more equal relationship, even though one person is more "expert" than the other in the literacy interview.

Recommendations

The recommendations from my research are:

- a larger sample size should be selected to further investigate these power relationships
- further research should examine how power relationships impact on the quality of the assessment outcomes
- the literacy field, through training and publications, should raise practitioners' awareness of how power impacts on literacy assessments
- the unseen corporate participants in the assessment need to be trained so that they become more aware of the impact of language use to empower/disempower clients
- further research should examine and try to determine appropriate questioning techniques to use in a literacy assessment.

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WHICH AGENDA? THE DILEMMA FOR ALBE PROGRAM PLANNERS

Ann Brooks

INTRODUCTION

For some understanding of the positioning of Adult Literacy and Basic Education provision it seems necessary to consider the varied discourses that fuel the programs directly or overtly. What are the various stakeholders' expectations of participation in an ALBE program? To provide an effective response to the demands of these players, a program planner needs awareness of many facets. This paper examines some of the influences impacting on program planning.

To find answers to queries about structuring provision, desirable learning outcomes and what are the most effective programs in ALBE, a preliminary step could be to consider the varying agendas to which a program manager or curriculum writer needs to respond. This study considers some of the issues involved in the determination of a program's process and content, at the stage where the learning objectives are determined and the planning or recommendations for the student will begin. No attempt is made to suggest a 'best possible scenario'; in fact it is my personal view that each program should result from awareness of many of the issues involved and that a specific response will be needed for each program determination, once the background knowledge is weighed against the specific needs and goals of the student. Any one of those factors may determine the whole program or may result in the emphases that are included or become dominant through the choice of the most appropriate learning option.

The agendas that are considered are not explored fully. So once program planners are aware of the varying discourses, they would explore in depth the concepts identified as keys to their programs. Whilst a mixture of numerous influences, with constantly changing guidelines and relationships, will be responsible for any specific provision, four major areas of influence seem dominant: past and current ALBE theories, the political framework, the prospective clients' demands, and the existing provision structures. However, within any one aspect there will be many complexities, as demonstrated by considering just one of those: 'Existing provision' - when considered from the Australian viewpoint - demonstrates the radically different contexts existing. Largely developing from a state basis, the nature of adult literacy provision is significantly different in each of the states as a result of different histories, funding and ownership of programs.

Reasons for the formulation of diverse provision can be demonstrated by the reasons given for seven large-scale studies carried out in the USA between 1970 and 1985 (Newman & Beverstock, 1990:47):

- To establish a national estimate of literacy levels,
- funding agencies wanted to evaluate progress of learners in their programs,
- researchers and practitioners wanted to compare the effectiveness of various

approaches to literacy learning,

- instructors and learners needed dependable ways to measure literacy gains,
- to gather information that would influence the course of instruction,
- employers wanted to know whether prospective employees had the literacy skills needed for advertised positions.

This diversity gives an indication of the scope of any investigation. It is interesting to note that the relative value and the implications of the different agendas were not recorded, neither is there an identified link between the reason, the results and any future directions. These are further issues that a program planner has to consider.

In addition to the 'broad' agendas noted there is the need to consider specific considerations. Such a mixture of influences is demonstrated through the DEET (Department of Employment, Education and Training) TV advertisement run in 1994/95. It informed the public of the assistance available for "Over 1 million Australians who can't read and write effectively". The advert gave the impression of freely available, unrestricted access in one-to-one learning partnerships in the student's home. The advertisement appeared at a time of disenfranchising community programs - the main providers of such services. The pattern for assistance seems to be structured courses for specific groups with time restrictions being promoted through the increased use of the tender system, where cost effectiveness would probably favour the system provider. Seddon (1993:12) underlines the impact of this approach with her comment; "In *Working Nation* (Keating: 1994) this (change) is brought to its height: redefining language and literacy programs with recurrent funds as labour market programs funded on an accordingly short-term basis".

Additional influences and relevant information arise from the consideration that many of the issues affecting debates about 'literacy' derive from or impinge on other discourses: The wider agenda of adult learning, and in particular the present link between training and the economic agenda are examples.

THEORETICAL FRAMEWORK

Which literacy?

For a program planner there needs to be some personal acceptance of what constitutes 'literacy'. But to find such a standpoint it is necessary to consider some of the discourses that have provided fierce and invigorating debate about 'What is literacy'? A starting point could be the view that literacy takes place everywhere.

It might be useful to keep in mind a comment by Graff (1987:3): "Defining literacy is tricky". But nonetheless, such defining has occupied many theorists and practitioners. The conflicts identified for reading, by Adams (1990: 1), "The question of how best to teach reading may be the most politicised topic in the field of education", could be applied to literacy. Probably a necessary base is to accept with Street (1992) the concept of multiple literacies, rather than a single thing called 'literacy'. This view is supported in the nine educational principles for the draft Adult Basic Education framework of Victoria (1992), stating

> that literacy cannot be talked about as if it were a monolithic undifferentiated whole, but rather that it needs to be seen as an amalgam of distinctive literacies requiring a range of capacities to read and write texts that have been constructed for quite particular social purposes.

Emphasising the 'multi-layer' view is that an interesting additional comment in that paper covers oracy, which is not covered within the brief but was considered by the planning group to be of such importance that an additional project would need to fully consider what 'characterises oral competence', and would also have to include all the various facets of oral communications.

If the program planner adopts a broad field definition that accepts not only the inclusion of 'literacies' but that the word itself should include all features of communication - reading, writing, talking, listening, thinking - there is still a decision to be made about the inclusion of 'numeracy'. To adopt a position on whether it is an integrated or a discrete component within literacy activities, or is a separate curriculum item, similar discourses to those for 'literacy' are relevant for the planner.

Elaboration of the literacy definition presents the need to consider a context for the activity, as a person has to read or write 'something', or, according to Gee (1990), "literacy is defined by its task". As Falk (1992: 3) states, "We always read, write, speak and listen to something in some sort of context".

Historically that 'task' or 'context' has undergone major changes. One of the earliest pointers to the number of people considered to have 'adequate' literacy, was the collection of data from America in 1880, which, from the sample group enlisting in the Army, demonstrated that 64% were capable of signing their names. There is an interesting corollary that, then, 'signing' equated to being able to read. However, that raw figure hides other features. It has been calculated that at the time of the American Revolution, about 90% of white men could sign their name, but only 50% of white women could. The earliest date for literacy records of 'black and other races' is 1870, when 20.1% were considered literate. By the first census of 1840, being literate was the ability to write a basic message. Even then there were difficulties that program planners today would relate to: The figures are 'estimates' only and no-one had to demonstrate competency - they were simply asked *if* they could do the task!

Perhaps it was such a 'historical' view of literacy used a few years ago which enabled a *National Geographic* article, commissioned for the Australian bicentenary, to state that "Australia has virtually 100% literacy"! A truer picture is presented by the Coopers & Lybrand (1990) report : "In 1990 there were around 44,000 students enrolled in Adult Literacy programs and from Wickert's (1989:12) research that from a random sample, "46% did not identify the correct dose for a child on an 'over the counter' medicine".

Some of the most divisive arguments have focused on what type of literacy is being considered. The decision to accept that literacy is a set of skills for specific contexts, or is social behaviour and so critical for life, or is the political power of a person, or a country's economic tool, raises issues that will have fundamental implications for

program planning. Historically it can be shown that literacy's position is not a new area of debate. Looking at the review of literacy in America, Lytle and Schultz (1990), state that "multiple literacies dominated the 18th century view". Literacy was seen as "pluralistic, grounded in everyday practice and including the use of reading and writing for many social purposes". Similarly, cross-cultural research with the Hmong, Eskimo [Innuit] and Hispanic groups by Reder (1987) suggested that literacy learning is inextricably bound to the learner's *need* for the skill as a participant in a social activity:

> There is a need therefore to understand the way in which adults themselves see (reading and writing) as meaningful.... There are connections between the social organisation of literacy in each setting and its social meanings. In all the three communities literacy is organised as collaborative practice in which reading and writing are both used and transmitted. Within each of these collaborative group activities, however, individuals participate in the same literacy practices with different modes of engagement. Some actually handle the materials while others provide knowledge or expertise or are engaged in the activity solely from a social perspective....What is evident is the profoundly social nature of literacy.

The authors note that in the late 19th and 20th centuries, with changes in the structural life and mores of many communities, including mass schooling, the development of a person's literacy became a skill to be learnt at school. It became became "formalised and functioned to define and control access". Alongside the changes came the view of 'literacy' as a valuable and then a morally pleasing acquisition. It is interesting to note that the dominant voice has become an unnamed social entity, the learner's voice being subsumed. The arguments surrounding a context continue, with the reintroduction of the demand for literacy to address the need for a person to have access into their own critical literacies. A key implication for program planning is, who is to determine what particular literacy is critical for a specific person. The power relationship between the 'social' and the personal needs, to consider just two of the aspects, may determine whose critical literacy will be addressed through a program. Issues intertwined with these considerations and having implications for program planners include the positioning on a continuum of the curriculum as negotiated or pre-determined, the student and tutor relationship as collaborative or dominant, and the capacity for a program to present the "possibilities and the limits of literacy as a catalyst for social, economic and political change" (Luke et al., 1994).

Methodology issues

Deciding what definition of the term 'literacy' will inform program planning only addresses part of the concerns that will shape the eventual program. Particularly influential will be the decision about the methodology to be adopted. A whole continuum of choices exist and frequently in practice the program will present more of a smorgasbord of choices than the adoption of a narrow 'either/or' option. However, to choose a meaningful framework, knowledge of the various discourses is important. The view of the relationship between oral and written language presents an example of the divisions

that exist in any discussion of 'best practice.' One school of thought, following Cambourne (1986), would accept that "learning to become literate is a natural language learning enterprise which should be easy and painless". Cambourne, in analysing the reasons why there does not seem to be automatic success in gaining written competencies, emphasises the close relationship between oral and written skills and promotes the concept that the characteristics used in gaining oracy would produce similar results if followed for other language skills. The conditions he would recommend for a program include:

- close proximity for the learner to a proficient user,
- the use of immersion-saturation in whole, meaningful and contextually-based language, along with time and opportunity for learning,
- frequent demonstrations as raw material for learning, along with approximations, which are met with a high degree of tolerance. This provides the circle of 'hypothesis testing - modify - test again', which accompanies 'natural' learning,
- engagement by the participant - based on Frank Smith's (1981) view that to learn anything, students have to feel that they *can* learn,
- the responsibility for learning is grounded with the student,
- that to accommodate the principles, language activity has to be present in all forms. Language is an interlocking system and only 'whole' language will carry the necessary context.

These characteristics of literacy present a scenario to the program planner similar to Heath's (1980) belief: "...adults can learn to read and write, provided they have a setting in which there is a need to be literate, and they are exposed to literacy, and they can get help from those who are already literate".

Contrasting with Cambourne's view is that of Cope and Kalantzis (1993). One area of conflict is the differentiation between 'speech', arranged in 'information units', which can often be a single word or sound, and 'writing' with the 'sentence as the minimal textual unit'. Speech is considered to be the private domain, while the 'printed form' is 'primarily public'.

The division between the oral and written formats is supported by Vygotsky's (1993:71) exploration of the actions involved in the processes: "...inner speech is almost entirely predictive because the situation, the subject of thought is always known to the thinker. Written speech, on the contrary, must explain the situation fully in order to be intelligible."

Extensions from these concepts lead to claims about linguistic structures, as with the emphasis on 'genre' and with consequent extensions into social action, power and mores. The use of the 'genre' mode is considered to be the most effective way to provide access into the world of print. The repetition of a 'pattern' will provide for the learner one of the few points of stability. According to Cope and Kalantzis (1993),

> These patterns of discourse and their genre variations give access to different degrees and kinds of social power. In so far as social structures are relatively stable, genres persist over time and are the products of culture, context and his-

> tory. Furthermore, genres have specifiable linguistic characteristics which are not fully controlled or determined by individual writers or speakers.... Genres...are not simply the basis for social stability. They are also political media, both reflecting and creating social dynamism.

A further area of dissent would be the relationship between language and creativity. Supporters of the view that "written language is automatically pre-determined by linguistic patterns governed by the purpose of the text" would support the view that "originality comes only by way of the derivative, the imitative, the paradoc..." (Gilbert, 1989c:80, in Cope & Kalantzis) and would have major concerns with the view that

> ...texts are not, per se, embued with power. Neither texts nor genres themselves have power,...rather they are the sites and capillaries of power....I would argue for a model of reading...which makes explicit and overt the social relations of power *around* the text (Luke, 1992:3 - 4).

The sense of personal empowerment through control of the written form seems germane to all theorists, but consideration of the relative ways and values of gaining the mastery reveals a further diversity from the protagonists of the importance of personal voice in writing; "The writing process has a driving force called voice....To ignore voice is to present the process as a mechanical act.... Take the voice away and the writing collapses of its own weight" (Graves, 1983:227), to the genreists' view that:

> When it comes to the issue of the social effects of different genres, those most powerful in industrial society are not the closest to speech, but the most distant - ostensibly objective, abstract, ...the broader the access to a variety of linguistic genres, the broader the social access (Cope, 1993:68).

In addition to the major considerations of which theory a program planner will adopt are other agendas that will sculpt the ensuing program. An example could be the inclusion or not of linguistic structures as learning objectives, whether they will form the main focus of the program or be supplementary assistance to aid print access. Decisions about which type of linguistic pattern to be used will also colour the planning of a program. Similar issues address the acceptance of 'plain English' either as an overall context, specific learning objective or the base on which to build the program. Although decisions about the 'delivery' pattern of the program raise issues well beyond the scope of the present paper, it is relevant for the planner that the acceptance of any one theory of language carries implications for delivery.

> Lesson scaffolds need to be explicit, accessible to students and patterned in predictable ways. They need to be explicit both in managerial terms and in sequencing of curriculum content, even if this means producing textbooks that realise new pedagogical principles (Cope, 1988:80).

Access issues

Methodology choice could affect 'access' issues. Should an underlying tenet for enabling people to gain entry to the discourses that they wish, be by providing 'plain English' texts, or accepting that real empowerment may come from domination of texts as they appear in reality - frequently full of anything but 'plain English?'

From frequent requests from students to help with completing the tax form that has to accompany the training allowance documentation, I have come to realise that for the applicant to claim some relief from tax they need to tick the 'yes' box. So disregarding the instructions, the best piece of advice is 'tick yes for no tax'. So apt for coping with instructional language did this definition seem that it was used for a title for a booklet offering assistance with forms. As noticed by Luke, the emphasis in recent curriculum directives seems to optimistically assume that functional reading will be a non-problematic activity, based on the mistaken notion that "the job instructions one encounters are economical, effective and yield optimal results; that, for instance the instruction sheet that goes with a particular appliance is accurate and correct" (Luke, 1992).

The perspective of what adult literacy is seems to be in a permanent state of flux. Linked to that insecure yet challenging position is the need for some determination of what is the core role. Theories and associated practices are constantly being challenged, as shown through the debates about whether literacy assistance is the 'second chance' or filling the 'deficit' model for individuals who needed an extension of skills, to the concept of literacy as a vital component of 'life-long learning'. A further direction has originated from the criticism of attitudes to literacy in that training maintained conservative and traditional power relationships within society and particularly in educational contexts. Equity and access programs have been criticised as offering an entry into an existing and frequently disempowered position in society. Radical challenges maintain that one effect of literacy should herald changes in those relationships, extending the view that "education is potentially liberating. Education should serve as a site for contesting the unequal practices which individuals and groups are exposed to in their everyday life". The decisions about access raise issues about the positioning of the presenter: "whether educators should be keepers of the official knowledge, as opposed to facilitators of the critical thinking skills that will empower others..." (Ilsey & Stahl, 1993:24)

An ironic addition to the 'access' debate could be the way in which modern texts, in the postmodernist era, may well be denying access to all but the 'in crowd', a cultural elite: "postmodernist authors write texts that are often so tightly woven, clever, beautifully written and canonically referenced that they cannot be other than the products of the type of pedagogy and literacy that they so vehemently oppose" (Cope, 1993:73).

Specific needs

Frequently at the point of program or curriculum choice there may be more specific facets that would colour the choice of course material and presentation methods; for example the implications of the acceptance of 'prior learning', the particular need for gaining a skill or perhaps the specific make-up of a group. The effect of the latter could be shown, for example, with the gender implications of a predominantly female group.

Many feminist writers feel that the majority of academic writing is based on the male writers' perspective and consequently tends to value the attributes of rationalism and objectivity. By contrast, the feminine strengths of intuition, emotion and personal focus are undervalued. Work by Belenky (1986) (as cited in CarringtonSmith), and her

colleagues examined 'women's ways of knowing' and described five different perspectives from which women view relativity and draw conclusions about truth, knowledge and authority. Their research found that women's self-concepts and ways of knowing are intertwined. Belenky's research grew out of a concern as to

> why women students speak so frequently of problems and gaps in their learning and so often doubt their intellectual competence. We also became aware that for many women, the 'real' and valued lessons learned did not necessarily grow out of their academic work, but in relationships with friends, teachers, life crises and community involvement.

Integrating such considerations into the context for program planning might be only one of the pieces of the kaleidoscope, but may lead to effective participation and assist in meeting some of the expectations for involvement in basic education. An interesting additional relevance to the field of adult basic education is that the ways, according to Belenky, in which women view their learning concerns are very similar to the concepts of success identified by male and female students involved in a literacy program. As stated by Charnley and Jones (1979:91) in their evaluation of the students' gains, self confidence was the key result and this was translated into such personal points as "confidence in bearing", in a "feeling of being at ease with oneself", and being able to make "personal reassessments". The research found that the priority of achievements from students, "was not primarily...in terms of utilitarian success....The revised order of groupings (of criteria for success) was [a] affective personal, [b] affective social, and then [c] socio-economic and cognitive achievements".

POLITICAL FRAMEWORK

The White Paper

The seminal document of the present political position is the White Paper produced in 1991, *Australia's Language: The Australian Language and Literacy Policy*. As stated by Cavalier [see following], it remains the only White Paper on education of the Hawke and Keating governments and one of the few on education since Federation. The philosophy of the minister, John Dawkins, was perhaps best described by Rodney Cavalier, in an address to the Council of Adult Education (May, 1994) as "a quest for equality of opportunity" - this created a focus for provision for '*all*' Australians. Goal 1 of the policy states, "All Australian residents should develop and maintain a level of spoken and written English ...", and the encompassing nature is emphasised in the preface:

> The goals of the policy are comprehensive and coherent. They encompass proficiency in spoken and written English for all Australians....They address the needs of children and adults, of those in work, of those unemployed or not in the workforce and of Australians of different ethnic backgrounds. (Preface, vii)

Following the same line of equality of opportunity, the paper incorporates an acknowledgment of the diverse needs in such a group with statements on the 'range of contexts' and the 'diverse learning needs'. The necessary response to provide the 'cohesive and comprehensive policy' includes 'education and training programs addressing

their learning needs'.

Similarly, the literacy that is envisaged is "effective, intrinsically powerful, flexible and dynamic and involves the integration of speaking, listening, thinking with reading and writing". The expectations of any provision that, "We should aspire to an Australia whose citizens are literate and articulate; a nation of active and intelligent readers, writers, listeners and speakers" (Foreword, iii) would require a tall agenda to have the methodology, curriculum and provision structure to encompass that broad, nonspecific view of literacy.

While a review of numerous providers would probably reveal that they support the philosophies embeddded in the policy, in reality there would be a widely divergent provision map. This could mean that such varied programming represents very appropriate responses to the widely arching aims of the paper, or it could demonstrate necessary responses to an extensive range of agendas which have a different and often a narrower focus than the White Paper statements.

Examination of discourses that have developed since the White Paper reveals changing directions and emphases. It is important, however, to realise that any specific program is the result of an amalgam of directives and their relative strength is constantly changing, as is expected from the volatile political arena.

Economic agenda

Fuelled possibly by industry reports during the 1980s, that "increased economic problems resulted from workers unable to meet the literacy demands of their jobs" (Mikulecky, 1982:402): a new relationship has developed between adult basic education and industry. This has, for adult literacy in the current workplace reform context, not only generated a new arena for provision, 'workplace literacy', but has fuelled the accompanying rise to dominance of 'vocational education and training' in ALBE.

The dramatic effects on the positioning of Adult Literacy from this movement is demonstrated in the comments of Terri Seddon (1994:10): "In the late '80's it all changed again. ALBE was catapulted firmly into the educational mainstream. Its economic utility was affirmed. It was funded. It became important for national survival". An irony is that the long-sought for funding was accompanied by specific program directives that have tended to alter the very features of the educational area it was primed to support.

A further impact has been that of the discourse of economic reform. One result is the apparent ignoring of the fundamental concerns about the nature of adult literacy and the complex relationships between literacy, work and 'empowerment'. Literacy seems to have developed the persona of "a means to an end driven by industrial needs and economic reform" (Shore, 1992:416). The extent of this directional change is underpinned by the comments by McLaren (1982:229) that, "students and teachers are marginalised as 'accountability schemes, management pedagogues and rationalised curricula' are foregrounded as the driving force for increased literacy development."

The drive of these changes and the implications for course determination can be

demonstrated by considering the features recommended in an end-of-course evaluation instruction by Donaldson and Scannell (1986:179):

> There are a number of factors that affect productivity or profits. An improvement in any one of them may result from training. You need only to identify and relate your training objectives to them and then evaluate those specific factors after the training has been completed. If you can show management that training is responsible for improving profit, you will gain their support for future training programs.

Listed as some of the valuable effects to be derived from training are "direct cost reductions, productivity of trained versus untrained employees, work quality, accident rates, absenteeism, profits and sales volume".

For the program planner, one of the side issues has been the demand for cost effective training and the issue of time and such determinants as how many hours is an effective session, how many sessions a week for a student who for the first time is 'returning to study' as an adult, how many weeks, and what is the time frame for realistic achievement and to fit into an already busy adult life? There is also a need to achieve a balance between the philosophy that states "The length of time it takes a person to learn something does not matter: to begin to learn is to achieve and to achieve is to succeed" (Ross, 1984), against the time restrictions associated with funding specific programs developing in response to the 'economic agenda'. With WELL (Workplace English Language and Literacy program), for example, can a worksite enable a worker to attend 40 hours of training, and will that amount really address the learning needs of a beginning reader or turn the reluctant communicator into the effective team member desired by the economic reform agenda? Can the program take into account, the person "who manages a legible name and address after many weeks, (where) the modesty of the attainment should in no way undermine the magnitude of the achievement..." (*Moving Ahead*. ALBSU p. 27)?

An issue raised by consideration of the literacy agenda from a 'business' perspective concerns empowerment. The implications are shown through the comments of people involved in a training review of a nine-month workplace literacy training program in a large public hospital in south eastern USA. Gowan (1991:444) quotes a member of the firm: "the real message is *not* we want them to fill out these forms better. The real message is we want them to be different human beings".

Karen, one of the administrators of the program, in summing up the key issues of the training states:

> what management considered 'literacy problems' were not only different beliefs about reading and writing texts, but also actions that reflected gender, class and/or ethnicity rather than skills. Underlying these requirements were management's subtle efforts to control behaviour.

Differing views and consequent confusion about the reason for and the effect of literacy training is very clearly demonstrated in this review: "the participants felt bewildered by the new demands, supervisors were critical of the program and especially its early appar-

ent lack of success, and the need for the administrators to negotiate the minefield of all the different expectations". So a literacy program may be being established for the empowerment of the firm: "management thought employees were both confused and uncontrollable and hoped to gain more control over them by making them more literate - more silent and obedient and thus more productive". This is a point reiterated by Luke in his address to ACAL in 1992, with the question, "Literate in whose interests? To what ends? ....These key questions are on the table in current curricula and study programs, buried in terms like 'acceptable', 'appropriate' and 'effective' reading". I would extend his question to ask 'acceptable to whom?' as an underlying concern for the program planner.

Vocational issues

By contrast there have been pressures for the vocational training area in adapting to the demands of new directives. This is particularly relevant in the area of technical/vocational training, where there would be a contrast in the focus of 'skill acquisition' and the 'social' context of more general studies. In line with Gray's (1992) comment that, "We are, all of us, to a lesser or greater degree, products of our environment, and of the ideas that inform that environment", it is important to consider basic education training from the technical view expressed by James Gray (1992): "My own experience would support the contention that technical/vocational mind-set tends to be deterministic, and that concrete levels of thinking tend to pre-dominate".

In line with Gray's statement and the view of education in the vocational field as expressed by Dickensen and Erben (1982:3/2):

> The 'traditional' context for vocational training induces the students to resort to the evidence of a reality which they can touch with their hands. This world of objects is a world of certainty. All problems are soluble, so long as the correct methods have been employed....the pedagogical environment is arranged for the self-discovery to lead to a specific end, and so implicitly reinforces the determinism of things.

there would be considerable areas of difficulty when there is the additional force to include in that environment "liberal studies with its emphasis on the 'social', 'talk' and 'expression'" (Gleeson & Mardle, 1980). It is evident that such an intrusion would be viewed by staff, program planners and students with considerable suspicion. There are further implications for curriculum. Vocational assessment tends to avoid qualitative techniques, and with the emphasis on performance tasks, results in using only observable performance tasks, and to seek standardisation, which has 'neat and concrete results'.

As employment moves into the age called 'fast capitalism' (Agger, 1991: 2), accompanying this conflict of approaches is the need for all trainers to accept employment changes driven by the 'political reform agenda' with the suggestion that, "a theory in the workplace should include provision for adults to understand and interpret the meaning of the full range of events that occur in that setting" (Marsick, 1981:97). A fur-

ther complexity is added by the debate about what 'vocational' training really entails. Curriculum must reflect a decision about whether 'vocational' means 'for a workplace context' or is merely a change in location in which the capacity to be broadly literate is vital. The 'official' view may demonstrate an alliance with the philosophies of the White Paper and acceptance of Kelty's view that,

> The debate about 'general' versus 'vocational' education is now largely a wild goose chase, because of the demands in industry for change of work structure and organisation, the requirements for that workforce are grounded in a broad based general education in which the student develops adaptability, self-confidence and decision-making capabilities. (Kelty, 1988)

Similarly, the need to view the issue on a broad perspective is endorsed by Horne: "When the traditional pragmatists see 'the economic' as primary and the rest as the icing on the cake they are missing the point. It is all one cake. Social and cultural factors are an essential part of the whole". (Horne 1988:3) However, the counter view is frequently found in directives for curriculum. As a contrast to the broad view as demonstrated by the WELL (1992:4) program's aim "to empower workplaces", a recent letter from an Industrial Training Board (ITB) offered support for the delivery program in a local workplace, only if certain of the National Communication modules were used. This was in spite of the fact that the specific request from the workers and management and earlier provision had focussed on 'numeracy'.

The narrower approach may well be reinforced by having to program to the results of pre-delivery practices such as a needs analysis. Predominantly occurring on work sites, and often related to a skills audit and associated with a 'literacy task analysis', this demands a very specific approach for a program planner. It can present the chance to 'customise' the program to identified needs, or can limit the program to a 'fixt' approach that masks the need for literacy as 'access' or a broadly 'enabling' skill. A test format may be used to gain the raw material for a course and demonstrates the narrow focus for curriculum that may result:

> The purpose of the testing is to give us an indication of trainee knowledge, understanding or behaviour.... We can use a test to identify competencies ...or it may reveal gaps we had not suspected were there. Either way it gives us a starting point for the course. (Kroehnert, 1990:142)

One of the terms that has had a major effect on program planning recently has been 'competency'. If translated into its most straightforward form as meaning 'able to do', then any work in literacy, no matter how broad or narrow the agenda, has always been 'competency-based'. However, a whole training discourse based on competency has impacted strongly on curriculum planning. The National Training Board (1990:12) defines competency as

> the ability to perform the activities within an occupation or function to the standard expected in employment. This...should not just include specific 'tasks' but the attributes (the perceptual, motor,. manual, intellectual, social and affective abilities) necessary to determine, develop and carry out particular tasks

linking with the concentration on the "development of pre-specified, objectively measured observable 'performance tasks' for determining competency". Any statements should include the key concepts of the skills and the standards that are needed in the performance and the conditions. An obvious advantage is that this method, when placed in training programs, will provide common benchmarks and with appropriate accreditation, "will ensure the integrity of the 'social currency' of recognisability and portability of skills" (Allen Consulting Group, 1994:vi).

Flexibility is considered an integral part of the system as stated by Thomson (1991:5):

> it (competency-based training) allows the development of a continuum of competence statements from the very basic to the very complex. What is more it can be done in a variety of ways...the number of skills increased or reduced...the conditions more lenient or demanding.

To achieve this apparent contradiction of conformity and flexibility, a proposal by the Allen Consulting Group (1994:vi) suggests that,

> The new national competency standards framework should have...a common set of principles and criteria for consistent incorporation of level concepts into sets of standards. Different industries...should be free to develop standards, in the common national format, using their own sets of competency levels.

The pressure to develop and implement workplace-specific theory and practice has partly been initiated by criticism from researchers like Mikulecky and Drew (1987:87) that, "Traditional academic methods for teaching reading, computation and problem-solving have failed to give adults the basic skills they need to function on the job". The premise for the argument is that workers and school students read for different purposes, a worker needing to 'read to do', and consequently, "Successful workplace literacy programs are built round the daily literacy tasks workers encounter on the job. Instructional materials should emerge from the job task".

Impacting on that debate is the issue of 'marginalisation'. For the program planner the decision to place literacy/numeracy programs as either

- an integrated part of general training, either as undefined sections of perhaps an occupational health and safety course or as an additional section within another course, or
- 'discrete' sessions,

will have supportive theory and practices. The option choice will have a shaping influence on delivery.

Accompanying these issues is the need for all stakeholders to identify their training target and how this relates to the changing workplace. There is the need to acknowledge that, "the demand for unskilled labour is falling, while the demand for workers with technical expertise as well as high level language, mathematics and reasoning skills is increasing" (Butler, 1989). For the program planner, an additional challenge is to consider the actual skills that are being advocated. The 'common skill pool needed for Australian economic health" (Allen Consulting Group, 1994:10) will require complex and varied literacy practices: "...the critical skills ... often not technical skills but com-

munication skills such as literacy and team skills" (Hayton 1990) to provide the specific worksite needs of accessing training modules, or being able to demonstrate competency with an instruction booklet. An example from the debate of the suitability of 'skill focus' and then the secondary issue of whether that will really provide the answer to the very sector that demands it, demonstrates the complexity and the continuing nature of the debate:

> Adult educators generally have reservations about the utility of the vocational/non-vocational distinction, and the Association (AAACE) has on various occasions expressed concerns about an overly narrow focus on job skills. If the desired outcome is a more adaptable and flexible workforce, then what is required is not simply new or improved skills, but more skilful attitudes and behaviours. This is not just a matter of 'competence'-what a person can do - but also of intention and exertion - what a person is motivated and tries to do. (AAACE, 1992:18)

The latter point that introduces the need for the focused participation of the participant is echoed in a review of a training program by Trevor Kliese (1992):

> One major problem which emerged with the self-paced trials was that the student completed the workbooks, but didn't retain the detailed knowledge of basic concepts which underpin the need to link the learning objectives with appropriate delivery method and supported with consideration of the student's and programs needs.

The above-mentioned program continues by commenting that any industry requires "intelligent awareness of the relevant contexts for task performance" and that there is little evidence that such personal attributes can be "trained in". So further information for effective planning should involve the expectations and commitment of the participant.

A similar view is expressed through the review of the Motorola industry. Wiggenhorn (1990:75), in describing the stages through which their training programs progressed, states after the lack of success with the first plan,

> Training, it appeared, was not something that we could deliver like milk and expect people to consume spontaneously. It was not simply a matter of instructing or giving people a chance to instruct themselves. We had to motivate people to want to learn.

PARTICIPANTS

In contrast to the government and 'official' agendas which are the result of long-term research and are the distillation of many contributors' thoughts, the participants' responses are often produced in a pressure situation and in a transitory context. Unearthing the reasons for participation can be a complex task. According to Boud (1987), there is a predisposition for adults to learn, although the focus for that learning may often be an external event. In ALBE it is frequently evident that the actual trigger for the initial approach, be it a telephone call, a visit or enlisting the assistance of a third party as a go-between, is an outside event. A collection of the diverse responses received

over the last few weeks demonstrate this:

- *"I got a note from school and I couldn't work it out."*
- *"I've just finished a course and it was all right but I felt so slow when we had to copy notes."*
- *"I should have come ages ago, I know, my husband has been telling me to come for ages, but I just decided I would, and I don't think it will do any good but here I am."*
- *"They've changed the forms at the bank and now I can't do them."*
- *"My case manager told me about it. I didn't know about it."*
- *"I saw that thing on TV and I said 'Well I'd better give it a go'."*
- *"I've been sent to this other course from work and there's a test next week and I know I'll fail."*

Mixed with the triggers are a range of reasons which foreshadow the expectations of the prospective participants. What do they wish to be the learning outcomes of their involvement? What is their purpose for being involved in an area of endeavour that in the majority of cases has unpleasant associations?

It is important to remember that there are major challenges facing the participants. The very natural concern about approaching an area of learning that has hitherto presented considerable difficulties is often reinforced by the attitudes and consequent behaviours that have seen the diminution of those skill areas to a minor position in everyday life. Following considerable research with prospective students, Brian Cambourne (1986:5) was depressed by widespread feelings of alienation towards reading and writing:

> ...they (90% of the students) see writing as an activity to be engaged in only when necessary; as a barrier to be negotiated for examination purposes, having little other utility. In short they are alienated from writing....There are lots of alienated readers too.

This point is reiterated by Maushart (1992) when she comments on 'aliteracy'; defining people who have skills but choose not to use them.

What do adults, frequently with many responsibilities and demands on their time, expect of the education system they are approaching? Houle (1961) identifies three kinds of learning motives: "activity, goal or learning orientated". He suggests that one of them will be primary, but often two or three of the orientations may interact.

Later investigation and field experience would suggest there are often mixed motives for approaching learning, and that individually there is a complex pattern to explore. From the very specific reasons such as 'gaining a driving license' to the general 'to have a career', it is seen by prospective participants, as stated by Long (1991), as a problem-solving task. It is necessary to follow Long's definition into the statement of Dewey (1933), that a problem is whatever"perplexes and challenges the mind so that it makes belief at all uncertain".

To move into the context of the adult approaching Adult Literacy, it may be necessary to consider specific contexts that may be in conflict with other training concerns and may lead to the questioning of some of the expectations expounded by other agen-

das about participation. Lytle and Schultz (1990) state that adults are not enrolling in education for their first time. At that re-entry, their previous experiences will be with them; the student *is* the experience. Furthermore, their adult life experiences accompany them throughout their involvement, with "diverse and quite often extensive experiences using print in their daily life", and 'equally rich and disparate' life experiences and attitudes. An interesting feature of Lytle and Schultz's review that will need matching against the student's own feelings is that: "they (the students) feel they are starting over again, hoping to learn to read and less often, to learn to write. Schooled, but not educated they recount poignant histories of failure in traditional classroom learning."

A program planner will consider the implications of a personally-based view of literacy. Although it is in part connected with the expectations of a wider group, the social community, in which the literacy has been used, or in many cases those in which the participant has felt 'out of touch'. So the preconceived notions that a participant has about literacy and his/her view of what the program should deliver will at least in part be a 'sociological' consideration. The relative position of those attitudes and demands in comparison with other program planning requests, be they from the participant or agents for other agendas as identified earlier, will impact strongly on the learning objectives, methodology used and the end-of -program evaluation by all the players. A logical progression is that, because the sociological background and identified needs from immersion in that community will be individual, then the response may need to be equally singular. Application of the same view of expectations to the personal and work-based contexts for each person may need similar consideration.

Gathering the necessary information from students presents process and methodology challenges. It is important to constantly keep as a backdrop the following points:

- For many students the interview represents a major personal challenge. They are being asked to reveal an area of their learning that *they* view as 'a failure'. It is important that the growth of the debate about literacy, the 'coming out of the cupboard' as it is termed, does not obscure the very real, personal and negative self-view of the client. Comments from students such as *"everybody else could read"*, *"always last so after a while they never asked me"*, *"I know I'll never get a job"*, *"I just think I'm dumb"*, occur frequently and provide an opportunity for change that a program planner would hope to accept as a possible learning objective.
- As a rider to the above point, students may not reveal the real situation. They are used to giving stock answers and these can often cover competencies that they have, as with the sweeping response, *"No, I could never do t*hat" or the over-casual, *"No, I don't have any problems there"* disguising an area of concern.
- Many students can articulate with startling clarity the problems they have had with previous learning methods and situations and this information will assist in the provision of a positive learning experience. However, it is not always clear to both the interviewer and interviewee whether they are speaking and hearing the same information. A statement that, *"Oh yes, I can read the paper fine"*, may mean to the coordinator that any section of the local paper is accessible, while the student is thinking

that his rapid reading of the For Sale section is meant, or vice versa!

- In any interview there are preconceptions of the expected response. Both parties may well mis-read the implications of a question or the response. As Long (1991:32) states, "the way a person interprets and perceives is associated with the existing belief and value systems, variables not always obvious to the observer".

Similarly, particular circumstances may colour the experience for both parties. As the ability to work at maximum efficiency is generally not a constant, so other factors may affect the dialogue:

- Any documentation of an interview represents an interpretation: be it the mis-reading of a very important pause, or the confusion between the language heard by the listener and that used by the speaker at that particular instance. Recall of a conversation passage can be fashioned by present existing circumstances.
- A more formalised approach through a test or adherence to a pro-forma may remove some of the variables raised but can introduce further complexities. Does the use of a testing procedure already pre-determine the expected learning outcomes of a program and therefore fail to include the particular wishes of the student in the planning?
- Would the use of a pre-ordained process benefit the students who have prior knowledge of the process and ignore the students' learning attitude and capacity? Perhaps considering Rogers' (1961:55) comment,"if I accept the other person as something fixed, already diagnosed and classified, already shaped by his past, then I am doing my part to confirm this limited hypothesis", a formalised approach may just reinforce the 'status quo', which for literacy will often include the participant's existing view of themselves as a non-learner.

In addition, there has to be an awareness of the grounding of communication in social practice. Underlying any communication is the factor that a person acts through and is affected by literacy actions, which underpins the view that anyone's literacy is affected continuously by a range of circumstances and events.

A further voice is that of the 'public': hard to define and to identify and perhaps often representing an unnumbered vocal majority or aggressive minority but nonetheless a powerful advocate. One of the areas of influence is in the accepted positioning of a service and associated questions of its appropriateness and value. For adult literacy the 'who should pay' debate illustrates the dilemma.

Running alongside the public demand for adult literacy provision and the traditional view of free provision emanating from 'literacy as a right, not a privilege,' are the increasingly audible comments about economic factors. Phrases such as 'cost recovery', small fees to 'demonstrate commitment to the program', the increasing movement of literacy into integrated courses with their associated fee structures and the increasing domination of provision in discrete areas of funding - as with WELL and SIP (Special Intervention Program) - add a further connotation for the program planner.

COLLECTING THE DATA: WHAT THE STUDENT EXPECTS FROM A LITERACY PROGRAM

To discover the reasons for involvement and the hopes of participants, and set in context what each can expect is a complex task. I have chosen to research this section through interviews with students. Frequently, the first steps will occur in a one-to-one interview in which one of the aims is to collect data as a preparation for provision planning. To provide a context for the research process, details follow of the process at the Adult Literacy and Basic Education Unit.

Background

The unit has provided basic education services in the area since 1980, still predominantly through the original community service with the addition of labour market and work-place programs during the last five years. During one year about 350+ students request assistance, and the majority spend some time working one-to-one or in small groups in generally individually designed programs or those developed to incorporate specific guidelines for labour-market or workplace contexts.

For the unit, 'literacy' has a broad definition incorporating all features of communication as well as basic numeracy, which is considered a necessary aspect of effective participation in personal, workplace and community communications. However, as with all other issues of participation, students are asked for their view of the proposed study content. Gathering the information can present problems. A pro-forma was used previously, but the frequent comments from students on their feelings about official forms that they had to fill in, or which had been filled in by others as responses to their answers, has meant a practice change. Now notes are jotted down and the writing out of the profile for program planning and official purposes is completed after the interview. Occasionally, even this system seems to present too formal a situation and the first interview becomes just a general conversation, with a follow-up meeting organised for the collection of data. In contrast, some students have no reservations about the recording of the material and several have given permission for their interviews to be tape-recorded. From the viewpoint of providing satisfactory data for investigative purposes, obviously the latter is preferable. However, in line with the unit's commitment to the acceptance of the students' view as an integral component of provision, their wishes are followed.

Process

The initial meeting is generally held at the unit, unless there are transport problems or a strong student request for a 'home' meeting. Organised as swiftly as possible after the contact, the session will last about one hour and the interview will seek to cover the following points:

- interchange of personal information,
- a preliminary coverage of areas with which the student feels competent,
- a review of the student's learning experiences and how he/she see himself/herself as a

learner: This will frequently include negative and positive experiences,
- any specific short term goals and some understanding of the expectations of the student,
- briefing of what options are available, including time and place discussions,
- introduction into the methodology used by the unit, using a role-play of a learning point,
- immediate prospects and plans.

The list does not represent the specific order of events or the priority order of the information. The session is best summarised as a 'chat', with any note-taking explained, (for example, gathering details for the tutor, or for the completion of the form for CES), and the use of pen and paper to demonstrate teaching strategies (for example, to work together on an identified word). All materials used are 'authentic'. The local newspaper is used for texts and the request for writing will arise from a task that the student has identified. The meeting may become partly the first training session and strategies used are in line with the practice that will eventuate in the program - the student is given the *option* of writing; the work is accompanied by talking about the ideas which the student has *identified as relevant*, and the speaking, writing, reading combination represents the tutoring approach to activities.

Interview reports

In the following extracts, *A* is the interviewer, and the information was collected during 1994-95 from,
- part of the initial interviews of four students, *S, J, T* and *M,*
- *G* and *B* at a recent meeting of students
- end of course comments from *N.*

[Due to space limitations, the extracts from some student interviews and group discussions have been edited from this report.]

Student 1. *S*

S is a young person with one daughter. At this point in the initial interview, she has expressed her concerns about reading.

S *I wouldn't read for pleasure, no I wouldn't. I do read to D, cos I do think she's having trouble - as often as I can.*

A *So, what about the work that D's reading, the books - does she bring them home from school?*

S *Yes - she's bringing them home from school. I can read what she's bringing.....some words, some of the names.....the children's names. Well actually she's moving on .....to the 'Baby Sitter' books, well she's reading the 'Little Sister' ones.....She'll read a little bit. Well, I'm reading - but if she can't handle it. As long as she doesn't get lost in a story. She reads , I read. Well there's nothing worse than reading and getting lost, just losing it. So if she gets the gist of it - she'll enjoy the books too.*

A *What about reading aloud?*

S *Oh no .....no.....(laughter) no.....I get out of it, oh I know it sounds funny.....but no.*

A *What do you hope will happen with your reading?*

S *Just to pick up a novel and read - really get into it. Like mysteries, anything, just to be able to read it and to be able to read instructions for putting something together. I mean I had to put a cabinet together and the front was wrong (laughter) .....back to front. So I sat down, had a cup of coffee and looked at the instructions again to see what I'd done wrong*

(Later sections of the conversation reveal that both *D* and *S* love books.)

S *I like buying them.....new books. I'm, she's the same, she loves books*

S *I haven't written for a long time but I do quite enjoy writing, copying things down.*

A *Do you write at all now?*

S *No. Oh no. Not at all - if I've got to send a message to school I go round.*

A *Finding the words to put down on paper, was that difficult?*

S *It's up here, but getting it on the paper's.....I've always been even in school in the midst of writing it down.....it was hard. Sometimes if I had a rough idea what it is - I've got two ways in mind that I think. I'll write it and then again, look at it and have a guess.....I'd be very reluctant to leave a message.....but one of my aims..... mean one of my long term aims is reading and writing letters, like to the lawyer.....And a computer course would be nice, but I suppose there are lots of things, once my spelling is better. Computer would be handy, just for the children.....*

A *Well let's look at the things that we've identified*

A and *S* (together)

"read a good book"
"sort out percentages"
"write a message without having any mistakes and having to look it up"
"write a letter"
"reading with "D
"help the children with their school work"

S identified the lack of a "good job" as a problem for her. But her expectations from study with ALBE concentrated strongly on her role as a mother. Even the computer training which represented the only formal 'training' that she identified was expressed in relation to the children: "it would be handy, just for the children". Further, this was seen as something to be achieved 'after'. It is interesting that later conversations presented a further range of personal goals, and circumstances changed the order of priority. Providing opportunities for such changes added another facet to eventual

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provision.

Translated into program terms, *S's* work should at least include, from her perspective,

- some specific skill training - the percentage request, genre information for the letter,
- strategies - for helping *D* with reading, spelling assistance, schoolwork help,
- general skill work - numeracy, reading, spelling - and the realisation that *S* wants to be able read and write 'anything', not narrowly defined specific tasks.
- 'learning to learn' strategies to support *S's* continued need to expand her literacy and numeracy skills to support personal, training and employment goals, and also to extend the range of *S's* access to and use of texts.

Student 2. *J*

By contrast, another student had a very strong order of priorities, but far less confidence in his ability to 'get on'. A family member was present at the interview.

A *Shall we stay here to talk or would you like the two of us to go into another room?*

(Long pause, while *J* makes eye contact with wife.)

J *No. (2.0) I, we'll stay.*

W *// Yes, he doesn't mind if I stay.*

A *What about other reading?*

J *Yes, well with the kids, I mean they bring books and I would like, well sometimes I can .....have a go. Of course they're easy, like, but I'd, well, I ought to.....*

W *// Well you can I mean that's good when you do and sometimes you only need a bit of help.*

J *Yes, but I want to get it right.....with no mistakes, you know. I mean I should get it right.*

Some discussion between the three of us followed here about the difficulty of some of the books written for children.

A *Are there any other things that you'd like to read?*

J *Well, I know all about cars, engines and things. I've brought, I mean worked on cars, sort of rebuilt motors and things. And I buy the magazines and just to really read them. That's one thing I'd really like to do. That would be great! I mean with cars I really don't need to read about it. I just know what to do.*

A *Which means that you've remembered a lot!*

J *I suppose I have, I mean it seems easy. I've never had to deal with writing really since I left school . I've always had a job and just sort of found another one when I had to.....*

(Describes work history) *But now with this* (the injury) *I just will have to, if I'm going to run a business, well W will do some, but I should. I've got to find out what I've got to do and before I can, I'll, I have to improve the writing. The bookwork and things and reading the instructions and those pamphlets*

Through the conversation, *J* and I identified the needs he had. An additional impression I received came via body language and eye contact. Suddenly for *J*, changed circumstances had revealed a need to develop skills that, although they had concerned him somewhat at school, had not unduly worried him in adult life. However, it was also evident that his coping skills, determination, and work capacity were about to be brought to bear on literacy!

In a program, *J* wanted to include,

- improving spelling - both generally and for specific purposes,
- to become a "better reader and writer"-seen by *J* as 'general' skills and as preparatory to achieving the other goals,
- reading strategies for tackling specific genres - namely for reading with and, later, to the children, for personal interest (the car magazines), and specific business material,
- reading and writing strategies for further training - in line with the business plan, and also 'learning to learn' strategies and 'getting ready for study'.

J's program demands are extensive and the difficulty is to develop a program that will enable the basic generic skills to be addressed while concurrently providing the opportunity to include the specific and more complex 'vocational' needs and providing the 'access' to all the print from which he feels he's been debarred.

CONCLUSIONS

From the data there are several relevant implications for a program planner:

- Each student presented a very individual set of needs: Should the response be just as individual? The 'skill emphasis' program provided for one student would seem to be inappropriate as a response to the needs identified by another. An underlying issue is that from the debates about which literacy is being identified, students' interpretations may be limited by their previous educational experiences and this raises a key issue for the program planner about access. Embedded in that decision is the implication of the power relationship. Perhaps the comment of Street (1992:81), "Literacy is always a site of contest,...over meanings,...and clearly a contest over power" should apply to each student's relationship with the provider, as well as between conflicting agendas and theories.
- One of the major concerns of the prospective students was not the actual literacy competencies they already had, but their feelings about the skills they felt were necessary. There was a marked difference here between those students in an initial interview situation and those who were evaluating their program. The first group, with a wide range of literacy competencies, tended to ignore their achievements, including where they had demonstrated very effective use of communication skills: The job held previously was 'Nothing much'; the holding of full employment for several years in an area of high unemployment was dismissed with a shrug. But they stressed the feelings of fear and inadequacy in their often self-critical comments, seeing themselves as 'non-learners' and 'separate from the majority'. Confidentiality was a major issue for several. In the debates by theorists about what role literacy is supposed to be taking,

are those concerns being ignored? By contrast, the students evaluating their program more closely aligned their achievements and their feelings about literacy. Possibly, their program had provided the opportunity for them to realise that they had learning potential. As stated by *N*, as we recently talked over his time with ALBE,

> *N* *It's just everything. I mean things like (*said rather dismissively) *spelling would have to have got better and writing and stuff, but what you lot* (the tutors) *don't realise is how great it is, I mean how.....well mind blowing, that I, just like everybody else, I did it.*

- The learning objectives the students identified were a mixture of personal, social and work focuses, pervasive of all aspects of their activities. This was regardless of the actual process used to access ALBE: Students referred through labour market and workplace agencies requested assistance for social and personal reasons. All students had mixed general and specific needs and learning to read the lines was as important as learning to read between the lines. Their 'critical literacies' were not divided into the sets of literacy seen in some of the political and theoretical debates. Generally, I feel they would have endorsed the views of Senge (1991:238): The compartmentilisation of knowledge creates a false sense of confidence...dividing the work into 'This is the problem and here is the solution'....But the boundaries are fundamentally arbitrary....Life comes to us as a whole'.
- Eliciting critical programming information is a complex task:
  Several students found it difficult to articulate their thoughts the first time a question was asked. Students went back to issues themselves, often several questions later, to add a fuller answer. Body language and eye contact frequently made meaning plain when the actual words spoken seemed, in isolation, to be meaningless.
  Although in this paper there are only selected samples of the interview, the varied methods of response to the questions was demonstrated, even though similar conditions were presented; the same interviewer, range of learning options and focus questions. The capacity to respond fully seemed to bear little relationship to the urgency of the learning need or the level of oral competency. It seemed most in line with the students' self-concept and also their view of their possible learning ability. Interesting variations developed from the introduction of topics other than 'literacy', and on occasions the length of the interview: "Once we had moved away from the conversation about his own reading, his articulation improved and he started to take a more dominant role which continued once the conversation returned to his own learning objectives." (Interview report, 1995)
- Each person demonstrated that for him or her literacy was social practice. Each problem and need had a strong connection to maintaining and extending the students' links with others: So perhaps to respond effectively the program planner should be asking with Street (1992:18), "what do we know about literacy on the ground", and paying less attention to "prescriptive documents" and finding out "what people actually do with reading and writing in their real lives".
- The triggers for the decision to undertake basic training were individual, as was the

value that the participants saw arising from their participation. This diversity links with the comments of Shirley Bryce Heath (1980:132):

Finally for a large percentage of the population, learning and sustaining reading and writing skills are not motivated primarily by a faith in their academic utility. For many families and communities, the major benefits of reading and writing may not include such traditionally assigned rewards as social mobility, job preparation, intellectual creativity, critical reasoning and public information access. In short, literacy has different meanings for members of different groups, with a variety of acquisition modes, functions and uses: these differences have yet to be taken into account by policy-makers.

- An initial interview only reveals part of the learning objectives: a program should then leave space for growth and change. Perhaps there is a need to apply Luke's theory (1988:17) of planning for change to include the student's view: "definitions and practices of literacy continually change over time in accordance with changing social and cultural conditions for the acquisition and use of literacy, then the programming focus for now will no-longer be adequate for tomorrow".

A final consideration for program planners once they have defined their particular view of 'literacy' and they are about to launch into provision is to bear in mind the possible break between the 'ideal' and the outcomes of the practice. The response to broad aims like that of UNESCO: "A person is literate, when he has acquired the essential knowledge and skills which enable him to engage in all those activities in which literacy is required for effective functioning in his group and community...", may lead to involvement in a program, which, "in practice ...has been largely associated with narrowly-defined programs with work-related objectives, concerned with improvements in labour productivity....Ideologically specific objectives have been disguised behind a supposedly neutral model of literacy as simply technics skills" (Baker & Street, 1992:2).

The most difficult task for the program planner may be to find the way to balance the agendas with the provision of the positive learning experience that will enable the student to learn to read the world, not just the word (Freire,) and consequently, increasingly make their own decisions about which agenda to accept.

The diverse agendas identified previously represent only a fraction of the forces the program planner needs to consider when attempting to come to terms with creating the most effective program. Additionally, rarely are planners free agents. The relative strength of the agendas changes constantly and with the continuous acquisition of information by the planners comes attitude change. As always, debate about 'what are we trying to do' in addition to the next question, 'how are we to achieve the outcomes most effectively' fuels the process. Ironically perhaps, finding the true perspective for the program occurs only in the evaluative processes at the conclusion.

As the program planner approaches the point of decision about the form and process for provision while juggling the myriad influences, a final piece of the jigsaw could be the point raised by Brundage and McKercher (1980:60):

there is considerable debate among adult educators as to which mode of

teaching is best suited to the needs of adult learners. It seems appropriate.that each model is functional for some adult learners, in some learning contexts, and for some content; and that no one model will serve all purposes.

So perhaps the dilemma for the program planner is never resolved as his/her practice is a "never ending moving about between roles and positions" (Ellsworth, 1989:323).

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INSTITUTIONAL LANGUAGE AND POWER: A CRITICAL ANALYSIS OF HOSPITAL LANGUAGE

Steve Holden

INTRODUCTION

Hospitals use language to construct and maintain the institutional procedures, the 'vested interests', of the hospital. In making such a claim I will be referring to language in the broad semiotic sense, that is, as any patterned system operating for the purpose of communication which uses culturally defined and learned signs/words and images/symbols. Language, in this sense, reinforces the roles or identities and relationships of the participants in the system. The language of the hospital often reinforces hierarchical power relationships between participants, defining the possible behaviour of participants.

This study will consider the effects of attempts to institute Patient-controlled Analgesia (PCA) in hospitals. It will look at the way in which patients are able to 'read' the institution, broadly in terms of the language of the hospital and specifically in terms of the language of PCA. It will argue that the hospital in general maintains a language which dominates the patient, makes him passive and submissive, while the language of PCA in particular presents 'mixed messages', suggesting to the patient that he is both active and passive, dominant and submissive.

The implications of such a conclusion are twofold. Firstly, they go a long way toward explaining why PCA sometimes fails for some patients. Secondly, they suggest far-reaching consequences for hospitals which have gone or intend to go down the path of 'empowering' patients. If the language of the hospital changes in a way which *includes* the patient in the treatment (even if such language pays only lip service to such inclusion) the institutional shape of the hospital (the ideology which underpins it) will change or the working of the hospital will become confused as participants try to interpret or act on the mixed messages which they receive.

RATIONALE

Hospitals, like all institutions, make clear distinctions between the roles or identities of the various participants within the hospital system. These roles or identities are more or less clearly held by the participants as a result of the constantly reinforcing "...distinctive ways of saying, doing, being, valuing and believing (and sometimes writing and reading) in the 'right' places at the 'right' times with the 'right' people and with the 'right' props..." (Gee, 1992, p. 7). In other words, the participants in the hospital institution more or less know 'who's who' by reading the signs: A nurse, for example, speaks, acts, reacts, dresses, reads scripts and writes particular scripts (drug charts but not prescriptions) in a way which defines the role or identity of 'Nurse'. The Nurse's role or identity is constructed and maintained by the Discourse practices of the various players in the hospital system. I am using Discourse here in the specific sense argued by James

Gee, that is, to mean the 'rules' used by certain groups in certain social contexts to arrange ways of acting, interacting, thinking, valuing, dressing, and so on, available to the participants of the group, as well as to differentiate 'outsiders' to the group who do not act, interact, think, in such ways (see Gee, 1990, 1992).

The model identity of Nurse that the nurse holds for himself is expressed in the things he does (or doesn't do) and in the things that other participants do (or don't do) in relation to him. Moreover, the identity the Nurse holds for himself is constantly modified in relation to the other identities or Discourses that operate around him. The Discourse of the Nurse, for example, maintains a 'rule' that subordinates the Nurse to some of the other players in the hospital system (for example, Specialists, Residents) but not to others (for example, Patients, Attendants).

The Discourses of the various players, then, in creating and maintaining ways of acting and interacting, thinking, dressing, and so on, establish the bases of power, status or prestige for all the players. Discourses are, in this way, essentially political: The 'rules' used by a certain group, say Specialists, to differentiate Specialists from all others, privilege Specialists and exclude all others from the enjoyment of the privileges, status or power enjoyed by those within the Discourse 'Specialist'. This is not to say that privileges are simply the result of conflict between Discourses. The Discourse of Nurse, which subordinates Nurses to Specialists, is complicit in a cooperative way, endorsing the distribution of power within the hospital system which gives greater access to certain social goods (status and power) to Specialists. That is, all players within the system contribute, through the Discourse-based perception of their own and others' power, to the hierarchy of the hospital.

Within a complex social structure, like a hospital, the roles or identities or Discourses of any participants in the hospital are, then, 'read' by others and the various 'readings' that are made are the sites for maintaining (or possibly obstructing) the hospital system. Reading the signs 'correctly', that is, in a way that maintains the smooth running of the hospital (whatever other functions it may also have with regard to status or power), is important for all the participants in the institution. To read the signs 'incorrectly' is to bring into question or to confuse the usually accepted roles of the hospital and the hierarchical positions of the players in it.

Reading the signs 'correctly' allows participants to make decisions about their roles in relation to other participants. This is particularly important for the Patient who is, in the nature of hospitals, most often a novice (that is, the least experienced at reading the signs or accounting for the nuances in such reading) and the one who receives (or fails to receive) the goods and services provided by the hospital. If a participant fails to read the signs, or if the signals presented by other participants are blurred or inconsistent, he cannot 'know' how to respond. Is the Patient to be active or passive in response to the Resident? Ought he to take a dominant or a submissive role? Clearly, the distinct and formal elaborating of the roles or identities or Discourses held by participants in a hospital are necessary for the running of the institution. (They are not necessarily good for the participants.) This goes a long way toward explaining the highly

institutionalised (formalised or ritualised) ways of identifying Nurse, Specialist, Resident, Cleaner, Patient, and so on. But we are not just dealing here with the functional and politically neutral means by which the novice Patient negotiates his way through the institution. We are also dealing with the way all participants express and receive signals appropriate to the role or identity that they hold and the power that goes with this.

The signals given and received (encoded and decoded) in the hospital setting may be formally recognised or informally practised and produce different messages for different 'readers'. For example, the formal use of uniforms (nursing costume, doctors' coats), titles ('Sister', 'Doctor', the rather confusing 'Mister') and badges distinguish hospital personnel in terms of general function. But the informal signal given by Nurses who wear a stethoscope draped across the back of the neck, in the manner that is *de rigeur* for a Resident or Registrar, blurs or overrides the functional distinction between Doctor and Nurse. The Nurses who so wear a stethoscope are, in fact, projecting (to some participants) their membership in the Discourse of Doctors. This is all very well if the hospital operates according to a team model (both in theory and, a much more difficult proposition, in practice), but is more likely to cause confusion for those who are novices or apprentices in the hospital.

The way the Nurse operates is true also for all other participants. It is not only the formal but also the informal signals, not only the implicitly but also the explicitly held and expressed attitudes that impinge upon others in the institution. Frequently, implicitly held attitudes contradict and override explicitly held ones.

The roles or identities or Discourses of the participants in a hospital are, of course, continually being reasserted or modified. In the event that a Specialist decides to account for the diagnosis provided by the Patient, for example, he is redefining the Discourse of Specialist. If he gets too far out of line his practice will render him marginal to the Discourse and other participants in the institution (Specialists and non-Specialists) will put him back in line or reject him from the Discourse of Specialist (Gee, 1992, p. 11). Of course, if he takes other Specialists with him he may create a new Discourse. What is at stake in this constant reassertion and modification of the Discourses of the participants in a hospital is the political organisation, that is, the very shape of the institution itself.

In the hospital institution, the structure or shape of relationships has traditionally been hierarchical. The implication of this is that instructions and reports are passed 'up' and 'down' a 'chain of command'; reports 'up' from Patient to Nurse to Resident to Registrar to Specialist, and instructions 'down' in reverse. Of course, in some hospitals the shape of the institution is not hierarchical. Some hospitals might be characterised by a 'team' or 'cell' approach, and some might combine hierarchical with team structures. In such an institution, the Discourses held by the various participants have to accommodate the changing demands as the situation moves from an hierarchical to a team or cell structure. The Nurse, for example, might take on traditionally withheld 'medical' roles as a 'team member' but drop these when the context is changed by the instructions of a Specialist (with the power of a prestigious Discourse) who assumes a hierarchical run-

ning of the institution. Similarly, the Nurse might take on 'medical' roles on some wards but not on others.

Such fancy footwork, such rapid modifying of roles, requires experience, the learning by repetition of the cues that are the signals for a change of role, especially for the transfer from popularly held traditional hierarchical Discourses (usually the dominant Discourse) to teamwork Discourses. The difficulty for any player in such a complex situation, where the cues that are the signals for a change of role are rapid and subtle, is that familiar ideologies (familiar by virtue of being learned by repetition) are also being changed *or not being changed* when, to use the common but linguistically useful term, experienced players merely pay 'lip service' to the changed teamwork Discourse, giving superficial signals of a change in the Discourse, while maintaining the familiar ideology in which the greatest power and control still lies with the Specialist in the hierarchical Discourse. (I am using 'ideology' here in the sense of the scheme or theory that is used by members of a social group which involves generalisations that defend the way in which things are organised, or the way in which social goods are distributed. For example, in the hospital, the 'natural' way to organise relationships is grounded in the belief in (acceptance of) an hierarchical 'chain of command,' in which various degrees of access to power and status available to the participants is justified in terms of the 'naturalness' of the hierarchical view of things (see Gee, 1990, chap. 1).

It is precisely where competing ideologies and the access to power and status that go with the ideology are at stake, resulting from the contradictory signals that patients receive (as a result of, say, the ideology of hierarchy in opposition to the ideology of teamwork), that problems in 'reading the signs' in some hospitals or with some practices occur. Such problems lie not simply with the novice Patient. Patients generally make an accurate reading of the signals provided by the various Discourses in the hospital so that they are able to act in accordance with the dominant ideology, where Specialists, Registrars, Residents *do* have power in an hierarchical organisation even when the explicit literate practices of the hospital suggest otherwise. Where such linguistic sites of ideological conflict exist, where contradictory signals are provided to novice Patients, it is likely that we will find some form of breakdown in the hospital system or some form of restructuring of hospital practice by various players, Specialists, Nurses, Patients, and so on, to accommodate the contradiction.

A case in point involves the administration of Patient-controlled Analgesia (PCA). This paper will look at the language used to 'empower' the patient who is *given* limited *control* over his pain. It will conduct a Discourse Analysis of the literature provided to patients about PCA to show how the language of the institution, in attempting to empower the patient, in some cases may actually disempower him. The Discourses of the institution reflected in the language put the Patient firmly in his place as a passive recipient of the treatment. If the Patient is willing to read the instructions to the PCA system as empowering he is contradicted by the lack of control the instructions also indicate. That is, the PCA literature signals that the Patient does not have (or has very little) control over the situation. Problems with PCA (although, it should be pointed out, it often does

succeed) will be assessed by examining the literature on PCA read by Patients. The general language practices of the hospital (language and power) will be considered with reference to Fairclough and Gee's social linguistic theories. The language of PCA will be considered by means of Discourse Analysis (see Gee, 1990, 1992), with reference to differences between oral texts and scripts in terms of nominalisation (Derewianka, 1990) and the assumptions regarding 'simplification' in 'Plain English'.

LITERATURE REVIEW

Language empowers and constrains people in all social situations, providing the language user with an ideologically situated framework from which to see the world. James Gee's (1990) theory of Discourses argues that, "One has to be socialized into a practice to learn to read texts of type X in way Y, a practice other people have already mastered." (Gee, 1990, p. 43; Gee, 1992, p. 2). Such socialisation, according to Gee, apprentices the individual (Gee, 1992, p. 6) not just into a set of language practices but also into

> ways of acting, interacting, being, thinking, valuing, believing, gesturing, dressing, using various 'props' (books, paper, notebooks, computers, rooms and buildings, etc.), as well as ways of using language (written and spoken)....[T]hese integrations of ways of being-doing-thinking-valuing-speaking-listening(-writing-reading) [are] 'Discourses'... (Gee, 1990, p. 174)

where 'Discourse' refers to, "... a sort of 'identity kit' which comes complete with the appropriate costume and instructions on how to act, talk, and often write, so as to take on a particular social role that others will recognise..." (Gee, 1990, p.142). A Discourse is

> a socially accepted association among ways of using language, of thinking, feeling, believing, valuing, and of acting that can be used to identify oneself as a member of a socially meaningful group or 'social network', or to signal (that one is playing) a socially meaningful 'role'. (Gee, 1990, p. 143)

Clearly, such an analysis of language argues that communication of information is simply one of the many functions of language use. "Language is...also a device to think and feel with, as well as a device with which to signal and negotiate identity..." (Gee, 1990, p. 78). Language is 'embedded' in the larger framework of social relationships and social institutions (Gee, 1990, p. 103). In other words, using language empowers or constrains participants; it is political, "... to do with powerful participants controlling and constraining the contributions of non-powerful participants..." (Fairclough's class reading, 1989, p. 46).

Often, as Gee points out (1990, pp. 127-29), language use differentiates the degree of power (status or prestige) and solidarity assumed by users on the basis of superficial or formal or surface features (see also Fairclough, 1989, p. 65). Institutionalised situations, like interviews for a job or a housing loan, 'gate keeping encounters', use language to differentiate between the power of the interviewer representing 'mainstream', culturally dominant values, and the interviewee (Fairclough, 1989, pp. 48-49). Further, as Fairclough (1989) and Derewianka (1990) demonstrate, written texts support 'main-

stream', culturally dominant interests.

Derewianka studies the practice of nominalisation, taking a 'process' and turning it into a 'thing.' She takes a written, nominalised sentence and 'unpacks' it by converting it into a spoken sentence.

> Hubble's finding about the expansion of the galaxies revolutionised our understanding of the Universe and its origins...

becomes

> There was this man called Hubble and he discovered that the galaxies keep expanding into space. Because of what he discovered, we now understand the Universe and how it began quite differently.

In Derewianka's analysis, "Hubble's *finding*" becomes "*he discovered*", the *expansion*" becomes "*keep expanding*", "our *understanding*" becomes "we *understand*", "Its *origins*" becomes "how it *began*.". This process of nominalisation packs more meaning into the clause by converting verbs (or processes) into nouns. Instead of using many clauses, each dependent on a verb (or process), the writer can compress much meaning into one clause (Derewianka, 1990, pp. 64-65). The nominalised clause becomes lexically dense (Derewianka, 1990, p.63). Derewianka's interest lies in making explicit, for the purpose of instruction, the processes that adults use. She seems to imply that the purpose of such instruction is to induct the student (in Gee's [1992] terms, the 'apprentice') into the practices of the dominant culture. Derewianka considers nominalisation to be an adult (mature) language practice. She does not deal with the political implications of the practice, although she suggests it is a "...favourite *ploy* of adult writers..." (Derewianka, 1990, p. 64). What is the purpose of this *ploy*? Fairclough's class reading of language and power suggests that nominalisation is used in the written text so "...that crucial aspects of the process are left unspecified..." (Fairclough, 1989, p. 51). Fairclough's interest is not so much in the compression and lexical density achieved by nominalisation but in the dislocation of causality. By nominalising verbs (or processes), the writer dislocates the subjects (or actors, to use the terminology of systemic functional grammar, Halliday, 1985) required for less lexically dense clauses to make sense. In other words, the agency or responsibility is removed from the clause. Fairclough's concern is that such nominalisation "...is the power to disguise power..." (Fairclough, 1989, p. 52). Writing or reading (and sometimes speaking in) a nominalised, lexically dense 'code' is, furthermore, a 'gatepost' practice, open to those (in the dominant culture) who have been trained in the practice, so that even when the interests of the dominant culture are not directly served by the dislocation of causality (Fairclough's case) writers will continue to use the code to identify themselves within the dominant culture (as, indeed, I am doing now).

The 'coding' of discourses or genres is not a matter of individual choice, (as Cope and Kalantzis point out, 1993, p. 67). Cope and Kalantzis argue that genres are linguistic sites of non-communication, miscommunication, deliberate counter-cultural subversion and ironic play (1993, p. 67) as venues for political action. The choice of genre and the exploitation of the characteristics that go with it provide the possibility for the priv-

ileging of oneself and one's Discourse (Gee, 1990, see above) and the disenfranchising of others, whether one is conscious of such choices or not. Practices in 'Plain English' are a case in point. The tendency in 'Plain English' to postulate a 'simple' grammar (constructing short verbal or actor-process oriented clauses) is itself a political construction, defining for the reader his position in relation to the writer who has access to several registers, one of which is 'plain', and which is deemed suitable for the reader.

The consequences of 'translating' a text into Plain English are political, more than simply literary. To determine that Plain English is 'suitable' for a particular audience is to define that audience in social terms (to define that audience in relation to other, possibly more 'expert,' or 'literate' audiences). When the act of 'translating' into Plain English is really an attempt to approximate the text to speech, the consequence is not simply to define the intended audience against other, more 'literate' audiences, but to exclude that intended audience from gaining experience with particular forms of language that are seen to be powerful. As Cope and Kalantzis point out,

> When it comes to the issue of the social effect of different genres, those [genres which are] most powerful in industrial society are not the ones which are the closest to speech, but the most distant - the ostensibly objective, abstract, scientific report, for example, or the complex, extended narrative (1993, p. 68).

The debate about 'Plain' English is not, then, simply a debate about methods (see, for example, Neville, 1990, and Salter, 1991). It is more properly a debate about the effects of the choice of genre in terms of privileging and disenfranchising. The tendency of instructional material, such as the PCA scripts to be considered later, to be written using a restricted code (Bernstein, 1971), with an oral structure, positions its readers in the Discourse of 'Patient' where 'Patient' is the least powerful Discourse in relation to other Discourses. Such positioning is considered by Fairclough to be an aspect of the power *in* discourse:

> The medical staff and particularly the doctor exercise power over the patient... within encounters based upon [the Discourses of doctor and patient]... in accordance with its conventions, which attribute rights to control encounters to medical staff and especially doctors. And as part of their power, the medical staff are likely to impose the discourse type [or the Discourse] upon patients, in the sense of putting pressure on them in various ways to occupy the subject position it lays down for patients, and so behave in certain constrained ways. (Fairclough, 1989, p. 61)

Such positioning in terms of Discourses is, Fairclough argues, ideological. The tendency by which those engaged in the Discourse of Doctor to 'occupy the subject position' is governed by the values, beliefs, practices, and so on of the dominant Discourse.

The focus of linguistic study is not, however, limited to the functions of language use. In Vygotsky and Luria's study of the claim that literacy (the ability to read) leads to higher order cognitive skills 'literate', that is, schooled, subjects were capable of categorising objects on the basis of abstract word meanings and deducing conclusions from

the premises of a syllogism. Asked to analyse their own personality, unschooled subjects described concrete and material aspects of their experience, whereas schooled subjects referred to more general psychological features (see Gee, 1990, pp. 56-57; Cope and Kalantzis, 1993, pp. 71-72). Vygotsky and Luria (as cited in Gee, 1990, p. 57) concluded that major differences do exist between literate and non-literate subjects in terms of abstract reasoning. However, empirical methods for distinguishing the ability to perform school-like tasks cannot distinguish between literate conceptual thought and school-based familiarity with the sorts of literate practices on which the tests are based. School-based familiarity with the practices of the dominant culture (particularly in terms of essay-type language use: abstracting, nominalising, depersonalising or effacement) is necessary in order for one to negotiate with and through that culture, and especially with and through institutions such as schools, hospitals, courts:

> One always and only learns to interpret texts of a certain type in certain ways through having access to, and ample experience in, social settings where texts of that type are read in those ways. One is socialised or enculturated into a certain social practice. (Gee, 1990, p. 45)

We are all apprenticed (Gee, 1992, pp. 6-7) into certain kinds of language use, so that we are all more or less familiar with the social-language practices of particular social settings.

This familiarity with the social-language practices appropriate to particular social settings is the concern of this paper. I want now to consider in detail the explicit and implicit 'rules of the game' in the hospital setting, with particular reference to the various Discourses operating in the hospital that are maintained or contradicted by the assumptions behind and language used to promote Patient-controlled Analgesia (PCA).

PATIENT-CONTROLLED ANALGESIA

I have argued above that language is highly politically charged, used in any social relationship to determine and maintain the power, prestige or access to control of the various players in the game. It has been argued that much of the positioning (dominating, serving, acquiescing, and so on) that occurs in any relationship is maintained by language in both explicit and implicit ways.

We express our allegiance to a Discourse (to the ideology, the beliefs and values of the Discourse, as well as to the ways of acting, interacting, dressing, and so on which maintain the Discourse) without necessarily recognising every feature of the Discourse in an explicit way. Much of the practice of 'empowerment' in the hospital setting fails to recognise important features of hospital Discourses in precisely this way. For example, although an interview between two 'team members', say, Doctor and Patient, may appear to be informal or conversational, strict rules based on an hierarchical Discourse (where the Doctor has greater power and prestige than the Patient) control the relationship.

The formality of the situation does several things: It defines appropriate content (discussion is limited to medical relevance, as decided by the Doctor); it constrains the

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participants to a clear subject/object relationship (where the Doctor initiates, while the Patient responds); and it creates a clear marking of social distance, status or 'face' (in the sense of having and saving 'face', see Fairclough, 1989, pp. 65-66; Gee, 1990, p. 97). In other words, while the interview is ostensibly conducted between equals, members of a team, the dynamics of the hierarchical Discourse, maintained by the formality of the situation, the titles of the participants, the way they dress, the beliefs they have about themselves and each other, define the situation as an hierarchical one. Further, the Doctor's position creates a dominant/subordinate reading of the situation whether or not she attempts to discount this dominance. For example, if she is to use an indirect speech act, such as, "Can you lift up your shirt, please?" the Patient will still read the request as a performative, that is, a demand for performance: "Lift up your shirt." Regardless of the Doctor's desire to submerge her dominance by ostensibly deferring (the request), the Patient still reads the question as a demand (the reinterpreted statement). (On performative verbs and indirect speech acts see Gee, 1990, pp. 95-96.)

The problem for the Doctor is that many of the signals that function to subordinate the Patient are institutionalised, grounded in the general hospital setting as well as (or despite) the specific behaviour (ways of speaking, acting, being) of the Doctor. Ritualised, institutionalised hospital practices are designed to constrain the relationship between Doctor and Patient for a good reason: They guarantee that the encounter is a medical one. The relationship is defined as a result of the construction of a 'medical space' (see Fairclough, 1989, pp. 59-60), produced, by providing a range of medical paraphernalia which help to legitimise the kind of relationship precisely as a medical one; by allowing only a restricted set of subject positions (Doctor, Nurse, Patient) and strict limitations on who can occupy them and how they are to be identified in terms of the modes of address, dress and demeanour. For example, 'medical space' is defined by the Doctor's disengagement, professionally appraising the Patient rather than making an aesthetic evaluation, which protects both Doctor and Patient from *misreading* the situation as, say, a sexual one but also helps to construct a reading of the relationship as one of dominance and subordination. (See Fairclough, 1989, p. 59.)

Clearly, hospital and medical practices have certain effects, constructing relationships for good, functional reasons, so that the roles or identities or Discourses of the various participants are clearly marked out. Problems are likely to occur, however, when hospital or medical practices are at cross purposes. This, I will now argue, is the case with Patient-controlled Analgesia.

Before I deal with the Patient literature (a Discourse Analysis of a text explaining Patient-controlled Analgesia, provided to Patients in hospital), I'd like to examine the grammar underpinning the term, 'Patient-controlled Analgesia', to show that the problems that will arise later are not simply 'textual' in the superficial sense of 'bad expression' but the result of a fundamental, grammatical confusion.

'Patient-controlled Analgesia' is a phrase which combines a number of curious features. First, the ostensible grammatical Subject position of the Patient is subverted by the adjectival function of 'Patient-controlled'. The Patient becomes merely part of an

adjectival phrase to explain the sort of Analgesia we are dealing with. That is, 'Analgesia' is the Subject of the phrase, 'Patient-controlled Analgesia', which really means 'analgesia (controlled by the Patient)'. If the phrase is changed so that the sentence reads, 'The Patient controls the Analgesia', then 'The Patient' becomes the Subject (Theme, Subject and Actor). That is, 'The Patient' becomes the focus of the message (the Theme), the element that the whole sentence is designed to explain (the Subject) and the thing that does the deed (the Actor) (see Halliday, 1985).

A further problem with the phrase 'Patient-controlled Analgesia' is less a grammatical than an etymological one. The use of the term 'Patient' in a hospital and medical sense is an extremely accurate one. 'Patient' means 'the object undergoing action'. The Patient is *acted upon* by the Agent. This is a grammatical relationship: The Agent is, by definition, *active*, taking the Subject position in any phrase or sentence; the Patient is *passive*, taking the Object position. This is not to say that the word 'patient' cannot operate as the Theme, Subject or Actor in a phrase or sentence. It certainly acts in this way in the sentence, 'The Patient controls the analgesia', examined above. The significance of the etymology of the word 'patient', however, is that 'The Patient' as the grammatical Subject cuts across the *meaning* of 'patient' as passive. In other words, to make 'patient' the Subject in a sentence carries a deep-seated contradiction. 'Patients' do not, etymologically and grammatically, *act*. The difficulty in giving control to patients is that, at this submerged level, it is faced with such a semantic contradiction. Now, it could be argued that the grammar and etymology of words have little effect on the way we use the language, that nobody really examines the meaning of the word 'patient' before using it. Even so, the grammatically and etymologically passive sense of the word 'patient' is the familiar sense we usually give to the word. Patients do not *do* things, they *have things done* to them.

There is, then, a fundamental grammatical and etymological confusion underlying the idea of Patient-controlled Analgesia. The difficulty in implementing such an idea is further compounded by the mixed and confusing signals directed to the Patient before he undergoes Patient-controlled Analgesia. The sorts of mixed and confusing signals I'd like to consider are partly the result of *positioning* the Patient reader as non-expert in relation to other, potential but unknown, experts by means of Plain English texts (as discussed above) and partly the result of contradictory information, insufficient information and misinformation. To look at such matters I will be referring to the following text, provided to Patients in some Tasmanian hospitals, which seeks to explain Patient-controlled Analgesia:

Patient-Controlled Analgesia (PCA) - Patient information sheet

What is the PCA Infusion Pump?

In the past, when patients needed pain medication, they called the nurse to administer it. Now, with the PCA Infusion Pump, that's all changed. Because, instead of calling the nurse, now you can push a button, which makes an extremely accurate and reliable instrument, called the PCA Infuser deliver just the right amount of pain medicine - safely, quickly, and very comfortably.

What is PCA?

Patient-Controlled Analgesia - or PCA for short - gives you control over any pain you may experience. Instead of ringing for the nurse when you need medicine, you'll push the PCA button instead. When you push the button, you'll receive a very small dose of pain medicine. Just the right amount, no more and no less.

How much medication will I receive?

Just the right amount prescribed by your doctor to relieve the pain. Your doctor and nurse will make sure the PCA is set to deliver exactly the right dose. If you feel some discomfort and want relief, just push and release the button. To control your pain so that you're comfortable, the medication starts working very quickly... usually within minutes ...so give it a little time "to work".

When you start to feel uncomfortable and need more medication simply press and release the button again. Built-in timers on the PCA will make sure your doses are safely timed during your course of treatment so that you receive only the medication you need throughout the day as prescribed by your doctor. No more, no less.

Our primary concerns are your comfort and safety. The PCA guards them both - accurately and precisely.

Can I give myself too much medicine?

No. The PCA Infuser is a precision medical instrument, specially engineered and designed, so that you cannot give yourself more medication than your doctor thinks is right for you.

If you do become sleepy or drowsy, try to wait a while until you begin to feel definite discomfort before you push the button again. Remember: try to find the comfortable balance. When you find it, you'll know it at once, and then work to stay there.

What if I start to feel sleepy?

Just relax. The pain medicine you'll be receiving has that effect on many people. Just remember to balance the pain relief you request against any sleepiness you may experience.

"Just enough medicine" will both take away the pain and keep you alert and awake - at the same time.

What if I become uncomfortable?

If your pain medication seems to stop working, even after pushing the button several times, just call the nurse to check your IV. If you're still uncomfortable after the nurse has checked the IV, your nurse will know what to do.

How long will I be using the PCA Infuser?

That's a decision your doctor will make. Just remember that everyone wants you to be as comfortable as possible and feeling yourself again - quickly and safely - with the expert care you're receiving from the medical and nursing staff of this institution and the PCA Infusion Pump, you can now help yourself to rest more comfortably and easily.

Now, besides the apparently contradictory information provided above, the text is confusing in a variety of ways. First, the genre of the text is ambiguous. It is an information sheet, suggested by the bold heading, but also a narrative, beginning with a traditional oral story-telling device, "In the past...", and a dialogue, representing, we can only assume, the questions that other Patients (but not the reader, referred to as 'I' in the questions written *for* the Patient from the Patient point of view) have already asked. There is already a dislocating of the Patient as reader, even before he deals with the specific information regarding Patient-controlled Analgesia. He is written into the text in a way that he has not controlled, that is, as the passive partner in the text. Having been so positioned, the status of the Patient as reader in the relationship with the writer of the text is further defined by the curious language associated with the story-telling genre: He is the sort of person who will understand 'pain medicine' but not 'analgesia' which is best understood by the writer, the expert 'we' of the text. Such firm positioning, the Patient as non-expert, passive partner in the provision of pain relief, is the primary message of the text.

Let's look, however, at the text in more detail to see how the Patient is positioned by the instructions of the text, only given control of a highly ambiguous kind and written into passivity. To do this I will reproduce the text in terms of its syntactic structure, the stanzas and clauses that make up the idea units of the text.

APPARENT FRAME (FRAME ONE)
STANZA ONE
Patient controlled analgesia (PCA)

Patient information sheet
ACTUAL FRAME (FRAME TWO)
STANZA TWO
What is the PCA Infusion Pump?

1. In the past,
2. [when patients needed pain medication,]
3. they called the nurse to administer it.
4. Now, [with the PCA Infusion Pump,] that's all changed.
5. Because, [instead of calling the nurse,]
6. now you can push a button,
7. which makes an extremely accurate and reliable instrument, [called the PCA Infuser] deliver just the right amount of pain medicine - safely, quickly, and very comfortably.

STANZA THREE
What is PCA?

8. Patient-Controlled Analgesia [- or PCA for short -] gives you control over any pain you may experience.
9. Instead of ringing for the nurse when you need medicine,

10. you'll push the PCA button instead.
11. When you push the button,
12. you'll receive a very small dose of pain medicine.
13. Just the right amount, no more and no less.

STANZA FOUR

How much medication will I receive?

14. Just the right amount prescribed by your doctor to relieve the pain.
15. Your doctor and nurse will make sure
16. the PCA is set to deliver exactly the right dose.
17. If you feel some discomfort and want relief,
18. just push and release the button.
19. To control your pain so that you're comfortable,
20. the medication starts working very quickly [... usually within minutes ...]
21. so give it a little time "to work".
22. When you start to feel uncomfortable and need more medication
23. simply press and release the button again.
24. Built-in timers on the PCA will make sure your doses are safely timed during your course of treatment
25. so that you receive only the medication you need throughout the day
26. as prescribed by your doctor.
27. No more, no less.
28. Our primary concerns are your comfort and safety.
29. The PCA guards them both - accurately and precisely.

STANZA FIVE

Can I give myself too much medicine?

30. No.
31. The PCA Infuser is a precision medical instrument,
32. [specially engineered and designed,]
33. so that you cannot give yourself more medication than your doctor thinks is right for you.
34. If you do become sleepy or drowsy,
35. try to wait a while
36. until you begin to feel definite discomfort
37. before you push the button again.
38. Remember: try to find the comfortable balance.
39. When you find it,
40. you'll know it at once,
41. and then work to stay there.

STANZA SIX

What if I start to feel sleepy?

42. Just relax.
43. The pain medicine you'll be receiving has that effect on many people.

44. Just remember to balance the pain relief you request against any sleepiness you may experience.
45. "Just enough medicine" will both take away the pain and keep you alert and awake - at the same time.

STANZA SEVEN

What if I become uncomfortable?

46. If your pain medication seems to stop working,
47. even after pushing the button several times,
48. just call the nurse to check your IV.
49. If you're still uncomfortable after the nurse has checked the IV,
50. your nurse will know what to do.

STANZA EIGHT

How long will I be using the PCA Infuser?

51. That's a decision your doctor will make.
52. Just remember that everyone wants you to be as comfortable as possible
53. and feeling yourself again - quickly and safely -
54. with the expert care you're receiving from the medical and nursing staff of this institution and the PCA Infusion Pump,
55. you can now help yourself
56. to rest more comfortably and easily.

The text is unusual for an information sheet in that it has a prosodic structure typical of oral narratives. The apparent frame (FRAME ONE) seeks to establish the text within the genre of abbreviated technical information, but the actual frame (FRAME TWO), which establishes the tone and prosodic structure for the text, introduces a narrative genre at odds with the technical information genre. STANZA ONE, while on one level an answer to the question, "What is the PCA Infusion Pump?", exhibits the properties of narrative, firstly, by initiating a traditional narrative beginning, and secondly, by introducing elements of story parenthetically and rhythmically (indicated by the square brackets in the text: lines 2, 4 and 5). The parenthetical rhythm, typical of narratives and not of technical information summaries, maintains the 'through line' of the story, emphasising a narrative perception of hospital procedures that, supposedly, Patients will be able to understand. The narrative structure intrudes into the explicit sequencing of clauses typical of an information sheet. Such intrusion contradicts the initial claim, suggested by the use of the bold heading, that the text is to be read as a technical one, according to the information genre. Further, the tendency of texts of the information genre to nominalise, that is, to take a 'process' (or verb) and turn it into a 'thing' (or noun), is almost absent from the actual narrative frame (FRAME TWO).

The orality of the text is evident in the highly process oriented (or verbal) structure: "2...needed...", "3...called...", "4...[ha]s...", "5...calling...", "...push...", "7...makes...deliver...", suggesting a 'simplified' version of hospital procedure. Where nominalisation does occur, in line 7 ("...an extremely accurate and reliable instrument,

called the PCA Infuser..."), the lexical density contrasts with the verbal, oral pattern of the previous lines to obscure the mechanics of the PCA Infuser Pump (what makes it extremely accurate and reliable?). By nominalising, by referring to the PCA Infuser in such a lexically dense way, agency over the machine is dislocated. Interestingly, the stanza does not even answer the question which at first glance appears to be the means by which the stanza is structured. While we learn that, "an extremely accurate and reliable medical instrument" is called a "PCA Infuser", the question, "What is the PCA Infusion Pump?" is not answered. That is, the 'question and answer' sequence that appears to structure the text is a superficial frame, masking the deeper narrative structure, the restricted code of the 'simple story,' which really organises the text. The answer, "... an extremely accurate and reliable instrument...", is no answer at all *if* the text is supposed to be of the technical information genre. If the text is supposed to be of the narrative genre (and structured according to oral patterns) then the question is redundant and the nominalisation merely out of place. (On nominalisation, see Derewianka, 1990.) Either way, the text is inconsistent and confusing.

The generically ambiguous (or unresolved) character of the text is also evident in the superficiality of the 'question and answer' frame which can be seen in the redundancy of the question opening STANZA SIX: "What if I start to feel sleepy?" Material in STANZA FIVE has *already* begun to deal with sleepiness *before* the question introduces this concern. That is, the 'question and answer' frame is redundant.

Aspects of other genres are evident in the text. Features typical of poetry are clearly evident in the rhythmic and repetitive patterning of the text: "3. they called the nurse" and variants (lines 5, 9 and 48); the refrains, "just the right amount" (lines 7, 13 and 14) and "no more and no less" (lines 13 and 37). Such patterning links the PCA Infuser with safety in an entirely rhetorical way, a device which is particularly clear in lines 13 and 14, where "13. Just the right amount, no more and no less....14. Just the right amount...", gain credibility from the emphasis given by repetition, not explanation.

Before I turn to the difficulties associated with the idea of 'control' in the text, I'd like to deal with the general tendency to position the Patient in the passive role by use of the verb, 'try,' and the adverb, 'just.' The verb, 'try,' appears in STANZA FIVE ("Can I give myself too much medicine?" to which the answer, if the patient really does control the analgesia, is surely 'Yes,' but we'll come to this a little later). The concern in STANZA FIVE lies surely with encouraging the confidence of the Patient with regard to controlling dangerous drugs. One can only assume from the question that Patients have, in the past, expressed fears about the idea of administering analgesia for themselves. What, then, does the verb, 'try,' do in the text? To 'try' in this text is, surely, to attempt something rather than to examine or investigate. The Patient is advised to *attempt* to find a comfortable balance between relief (proper use of the drug) and sleepiness (potential overdose). This suggests that use of the PCA Infuser is difficult and dangerous, an unusual conclusion indeed to suggest to the Patient.

On the other hand, the adverb, 'just', suggests that use of the PCA Infuser is simple and the operation of the machine is exact ("7...just the right amount..." and so on).

Now, when the adverb, 'just', is used in oral discourse, and this text is organised in a way that is like an oral discourse, 'just', often assumes that a degree of difficulty is inherent in the achieving of the verb: "*Just* multiply the square of P by the root of the denominator Q." In some cases, 'just' implies the same sense of difficulty here: "18...just push..." and "23...simply press..." imply a degree of ease in the use of the PCA Infuser, but "42. Just relax", "44. Just remember...", "48. just call..." and "52. Just remember..." imply that a degree of concentration is required by the Patient in order that the machine works properly. In other words, at some times use of the machine appears to be easy, at other times it appears to be difficult. It is to this confusion over how the machine works, and, most importantly, who is in control of it, that I shall now turn.

STANZA THREE (What is PCA?) states that control lies with the Patient: "8. Patient-Controlled Analgesia...gives you control over any pain you may experience." But what is it exactly that the Patient controls? There is a great deal of ambiguity concerning the claim. First, what is meant by "...Patient-Controlled Analgesia.."? Is it the institutional practice of giving control to the Patient? Is it the analgesia itself, regardless of the Patient's choice of the means of administration? Is it the machine (the PCA Infuser)? The sort of control the Patient has is very much dependent on the meaning of the noun phrase. Independent control over the analgesia is very different from control over the machine. Secondly, the claim made in line 8 is that the Patient has control over "...any pain [she] may experience..." when, in fact, she only has (ambiguous) control over her pain management.

Let us suppose, however, that the sentence means specifically that the Patient has control over the machine (the most likely meaning). What sort of control does she really have? The strong claim made in STANZA THREE is significantly weakened as the text goes along so that by the last stanza, STANZA EIGHT, the Patient is merely a participant in the pain management process: "55. you can now *help* yourself..." but the final decision on pain management is, "51...a decision your doctor will make." How is the Patient's control diminished in the text? First, and most generally, the text *instructs* the Patient to use the machine in certain ways and not in other ways. It does not allow the Patient to exercise options. This instruction is submerged by the interesting use of abbreviation. Where a formal text would state: "10. you *will* push the PCA button..." and "12. you *will* receive a... dose...", our text, depending on its claim to orality, is able to disguise the instruction with the use of 'you'll'. Secondly, the text provides limited information that explains how the Patient is excluded from the controlling of the machine: "24. Built-in timers...will make sure...doses are safely timed...25. so that you receive only the medication...as prescribed by your doctor..."; and "33...you cannot give yourself more medication than your doctor thinks is right for you." (As a side note, the information provided here is surprisingly insufficient given the Patient fears we can assume the text is supposed to allay. Compare our text with the explanation provided in a text intended for experts (anaesthetists and critical care specialists):

> PCA is administered by a special electronically controlled infusion pump incorporated with a timing device. When patients experience pain, they administer a

> small increment of narcotic (e.g., morphine sulfate 1 to 2 mg) into an indwelling intravenous catheter.... The timer is set to allow repeat doses to be administered within a prescribed time interval and to prevent administration of the analgesic dose earlier than the preset interval (i.e., lock-out interval). Thus, the lock-out interval prevents the patient from administrating a second dose before the first has its desired effect. In addition to the lock-out interval, a 4-hour maximum dose is programmed, thereby further preventing a patient from administering an excessive amount of drug over a 4-hour period. (Lubenov and Ivankovich, 1991, p. 38. See also Warwick, 1992.)

Note the use of negatives which clearly explain how the machine works and, in doing so, specify *how little control* the Patient actually has.)

The location of 'control' is highly ambiguous in our text. STANZA FIVE provides conflicting information about the operation of the PCA Infuser. Lines 31 to 33 indicate that somehow (the text doesn't specify) the machine prevents a Patient from giving herself, "...more medication than your doctor thinks is right for you." The medication is controlled by the doctor, who controls the machine. Lines 34 to 40 indicate, however, that the medication is controlled by the Patient. Her responsibility is to, "38...try to find the comfortable balance." As we have already seen, the use of the adverb, 'try,' implies a degree of difficulty in *attempting* to achieve this balance, and the seriousness of the attempt is further emphasised by the cautionary, "...remember...". The delivery of medication, assumed to be under the Patient's control in STANZA THREE, is no longer such a simple matter in STANZA FIVE, and is clearly outside of the Patient's control in STANZA EIGHT, where control lies with medical and nursing experts and the PCA Infusion Pump. STANZA FIVE, however, is the critical point in this transition. The Patient is, confusingly, *both* responsible and not responsible, in control and not in control, of her pain relief. This confusion is echoed by the general transition from *easy* use of the PCA Infuser (STANZA FOUR, where the Patient 'just' pushes the button, and the machine does the 'work' (line 21)) to *difficult* use (STANZA FIVE, where the Patient 'works' to find the balance between sleepiness and discomfort, line 41).

Finally, the text deals with notions of pain and discomfort in a curious way. 'Pain' is referred to ten times in the text, while 'comfort' (or variants of the word) is referred to eight times. 'Pain' most often operates as an adjective in the phrase (or variants of the phrase) 'pain medication' (lines 2, 7, 12, 43, 44 and 46). 'Pain' is the Theme of four sentences (lines 8, 14, 19 and 45). 'Comfort' is the Theme in every case where the word 'comfort' or the variants, 'discomfort', 'uncomfortable', 'comfortable' occur. The alternative use of the nouns, 'pain' and 'comfort' is highly organised in the text. 'Pain' is a noun which describes the *condition* that non-Patients ascribe to Patients. 'Comfort' (or more usually 'discomfort') is a noun which describes the *sensory perception* which Patients experience. Interestingly, 'comfort' occurs most often in the text where the Patient appears to be most active in the process of pain management. Of course, it is apparent what is happening here. The 'comfort' or 'discomfort' of the Patient is a much less threatening matter, an easier thing (one supposes, for Patients) to manage, than

'pain', with which only experts are qualified to deal. Further, the sensory perception, the *experience* of *'comfort' or 'discomfort'* is the Patient's only responsibility, while it is the *condition* of *'pain' management* that is the responsibility of the experts referred to in line 54.

CONCLUSIONS

An analysis of texts like the one above shows that institutions use language to construct and maintain certain kinds of relationship between the various participants within the institution, and, in so doing, construct and maintain certain ideological views about ways of acting, interacting, thinking, believing, dressing, and so on, that are seen by the various participants as being available to those within the institution (as well as separating 'insiders' from 'outsiders' to the institution). In our text, the ideological construction that some participants see as being the overt intention of hospital practice (that is, to give 'control' to Patients or, in general terms, beyond our text, to include the Patient as a member of the 'team') is undermined by certain features of language use which serve to contradict this overt intention, or 'blur' and make ambiguous the intended message. Characteristics of our text which define the Patient in a passive role, which deny control to the Patient and which locate real power with "...the expert...medical and nursing staff..." subvert the intended, overt signal that the Patient is in control.

Given the ambiguous and contradictory nature of many features of the text, it is no surprise that some Patients are confused and misled in relation to the degree of control offered by Patient-controlled Analgesia. The difficulty in promoting such an idea is, furthermore, not simply the result of ambiguity and contradiction. The language of the hospital, where language is taken in its widest sense, constructs and maintains the Discourses and ideologies that underpin the institution on a fundamental level. The words, signs, ways of talking, dressing, and so on, which constitute the hospital and medical practice have certain effects, constructing relationships for good, functional reasons, so that the roles or identities or Discourses of the various participants are clearly marked out. The rituals that operate in the institution are designed to define and constrain the relationship between participants, so that the institution is able to function (cleaners are expected to clean, doctors are expected to diagnose, and so on). The fundamental ideology of a hierarchical relationship between the various participants in the system maintains a *weltanschauung* which justifies the kind and degree of power that is vested in the roles or identities and justified in and by the Discourses of the various participants who operate in the institution. In this sense, the hospital uses language to construct and maintain those kinds of institutional procedure which are in its vested interest to construct and maintain.

Giving control to Patients may, in the long term, be in the best interest of the institution but to construct such a kind of new relationship between some participants in the institution is to challenge the existing, dominant ideologies of the institution. Patient-controlled Analgesia is, in this way, fundamentally at odds with the dominant ideology which protects hierarchical institutional practice. That some Patients have difficulty in

cooperating with a procedure which is at odds with the dominant ideology of the institution in such a way is no surprise. While the explicit intention of hospital literature such as the text considered here (and possibly other forms of communication which are outside the scope of this paper) may be to include the Patient in 'the team', the implicit ideology of the hospital, as we have seen, contradicts this, excluding and confusing those Patients (and possibly hospital and medical staff) who fail to read the implicit signals of the hospital.

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DOES EDUCATIONAL KINESIOLOGY PROVIDE COGNITIVE OUTCOMES - AND IS IT ACCEPTED BY ADULT LITERACY AND BASIC EDUCATION STUDENTS?

Rees Campbell

Overview

The field in which I am basing this study, adult literacy, deals predominantly with people who have not reached their learning potential. Adult literacy in Australia deals annually with a conservatively estimated figure of one million people. In 1990, Rosie Wickert published the first national survey of adult literacy in English titled *No Single Measure*, which identified an astounding level of adult illiteracy. The survey showed that

12 per cent couldn't find a simple intersection on a street map
31 per cent couldn't use the yellow pages correctly
57 per cent couldn't calculate a 10% surcharge on a lunch bill
73 per cent couldn't identify the issues in a newspaper article about technology.

These figures served to heighten awareness in Australia of the depth of the problem, as previous estimates of 10.per cent were obviously only touching the surface. A small section of the sample had such low levels of literacy they were not asked to continue with the survey. Over 50per cent of these were from English speaking backgrounds, over 50 per cent were male and over 50 per cent were over 60. There was less than a 10 per cent differential between non-English speaking background participants and those of an English speaking background, and the difference narrowed further for numeracy tasks. Women outscored men in eleven items, men topscored on eight tasks, and there was no significant gender difference for five tasks (Wickert, 1990).

Many adult literacy practitioners in Australia have adopted the following definition:

> Literacy involves the integration of listening, speaking, reading, writing and critical thinking: it incorporates numeracy. It includes the cultural knowledge which enables a speaker, writer or reader to recognise and use language appropriate to different social situations. For an advanced technological society such as Australia, the goal is an active literacy which allows people to use language to enhance their capacity to think, create and question in order to participate effectively in society. (Australian Council for Adult Literacy, 1990)

To support adult literacy students and their diverse needs and existing skills, this definition requires adult literacy practitioners to utilise any and all available techniques. Maximising student learning opportunities and recognising individual learning styles, prior experience and present preference is a priority. Good teachers perpetually search for methods, techniques and theories to help their students.

Ranging levels of expertise in varying fields have been explained away by the clichés, "different people learn at different speeds" or "we can't all be good at everything". This stance has been given credence by child developmental psychologists such as Jean Piaget, but there still remain the people for whom none of this rings true - the people who *know* that they *don't know*.

Many Adult Literacy students come to seek assistance because they have been diagnosed as "dyslexic". This term in its pure sense and literal translation means *dys* - having trouble with, or difficult, and *lexic* - words, or language. Generally, students are labelled as dyslexic only if their abilities in language do not equate with their demonstrated abilites and perceived potential in the wider academic field. Accepted with this meaning it can be a valuable term, and this is the sense in which I will use it.

There are many teaching and learning techniques. All teaching techniques aim to develop skills. I have selected Educational Kinesiology because it aims to allow individuals to achieve their potential by tapping and integrating the skills already within individuals - a philosophy easily married to that of adult literacy .

Kinesiology is the study concerned with the mechanics of movement of the human body. The term *Applied Kinesiology* is the study of applying information about muscles and body movement to functions of the mind.

> The cerebral cortex is responsible for consciousness, perception and memory (including ...movement patterns), interpretations and reasoning.
>
> The more extensive and well established its store of memories, the faster and more accurate will be its responses....but if the problem is unique, or only rarely experienced, the chances of responding quickly and correctly are lessened. (Jensen & Schultz, 1977, p. 42)

Educational Kinesiology can be described as a set of techniques; a synthesis of applied kinesiology within an educational framework which can be used for all students, but which seems to be particularly suited to those the established education system did not serve well. It is not a single technique which can be mastered as *the* answer; rather, it may be a means of enhancing existing methods by changing the patterns of ineffective learning. Students whom the existing education system served well do not often seek assistance from an adult literacy unit, nor do they carry with them a weight of failure through ineffective learning. "To first de-mystify and re-frame notions of learning is an important step towards developing the attitude that 'I can do it!'" (McCormack & Pancini, 1990, p.vi)

In this paper I will endeavour to present two perspectives: the theoretical, and the practical. Through the literature review I will explore the history and current usage of educational kinesiology. I will link the evolution and antecedents of educational kinesiology to the mainstream of learning theories; particularly hemispherical dominance and learning styles theories.

The practical segment of this study will concentrate on the research findings from specific educational kinesiology exercises used by adult literacy students within their study programs. The research questions the validity and efficacy of incorporating edu-

cational kinesiology into an adult literacy program. It also documents the opinions of students and tutors about the techniques.

In the final chapters, I will endeavour to link the practical to the theoretical: to enable potential users of educational kinesiology to make their decisions through knowledge, as well as intuition.

BRAIN HEMISPHERICAL DOMINANCE THEORIES: THE HISTORY

Speculations on the functions of the brain and the individual functions of the hemispheres have long been published by a number of theorists in the fields of psychology and medical science. Early in this century, due in part to theories published by the psychologist Fechner, it was common to believe that a "split personality" would be caused by dividing the brain along the midline. Opposing this view were those led by McDougall. His work *Body and Mind* was published in 1911. McDougall thought the two hemispheres could and would function with a unity of consciousness regardless of anatomical connections. This view was largely validated by intitial split-brain research.

Sperry

The first real scientific opportunity for these questions to be answered came in the form of surgical intervention. Commissurotomies were performed on humans in the 1950s. This is an operation where the two hemispheres of the brain are separated, the corpus callosum is completely sectioned, cutting the two million-odd nerve fibres linking the two hemispheres, but leaving all other connecting fibres intact. The researcher, Roger Sperry, stated that he found that

> each disconnected hemisphere acted as if it were not conscious of cognitive events in the partner hemisphere. Each brain half...appeared to have its own, largely separate, cognitive domain with its own private perceptual, learning and memory experiences... Each hemisphere in the lateralised testing procedures appeared to be using its own percepts, mental images, associations and ideas. (Sperry, 1982, p. 1224).

Whilst Sperry attributed a range of quite discrete activities and attributes to each hemisphere, John Eccles, of the same era, was concerned with self-consciousness of each hemisphere. Eccles has adapted the lists as suggested by Sperry and associates in 1968, and Levy in 1978, to come up with a list of descriptors. Interestingly, these, or very similar words, are also used by the range of practitioners on whose work I am basing my research.

Dominant Hemisphere (left)	Minor Hemisphere (right)
Liaison to self-consciousness	Liaison to consciousness
Verbal	Almost non-verbal
Linguistic description	Musical
Ideational	Pictorial and pattern sense
Conceptual similarities	Visual similarities

(cont. overleaf)

Analysis over time	Synthesis over time
Analysis of detail	Holistic - Images
Arithmetical and computer-like	Geometric and spatial

(Eccles, 1989, p. 208)

Eccles also goes on to say that though he titles the hemispheres dominant and minor because of the verbal and ideational properties of the left hemisphere, he says of the minor hemisphere, "in many important properties it is pre-eminent, particularly in relation to its spatial abilities with a strong pictorial and pattern sense." (Eccles, 1989, p. 208)

Though Eccles seems to consider that transfer of specific hemispherical abilities is limited, he does pre-empt more recent research into this by acknowledging that "a limited transfer of gnostic functions can occur at the young age". He cites examples of two people who had suffered severe left hemisphere damage in infancy and undergone almost complete hemispherectomies in their late teens. Eccles concludes that "it is remarkable that... the right hemisphere became a linguistic hemisphere. However, there were deficits in both its normal right hemisphere function as well as in its acquired linguistic functions." (1989, p. 214)

Herrmann

Ned Herrmann was one of the first theorists to link the "natural attributes" of each hemisphere to a more individualistic approach to learning as explained in his Brain Dominance Technology paper:

> While the body is symmetrical in terms of organ duality, that is, humans have two eyes, two ears, two hands, two feet, and two hemispheres, experts agree that in the use of these dual organs there exists a general asymmetry...we use one to a greater degree than the other. When combined, the concepts of specialisation and asymmetry or dominance produce...a distribution of specialised preferences that affect general behaviour. Specifically included is the unique individual's learning style. (Herrmann, 1987, p. 350)

Herrmann developed the "Herrmann Brain Dominance Instrument" - a questionnaire which outlines a personal profile of thinking and learning preferences. He was able to profile over 200,000 people with this instrument, and his data strongly indicated a correlation between occupations and dominance profiles. For the purposes of human resource development (Herrmann's original study was funded by the General Electric Co.), this led to the ability of presenters to target their major dominance profiles in the occupational group. For the purposes of general teaching, this has added much credence to the notion that good teaching incorporates all possible learning styles within a single session.

Malcolm Knowles sums up Herrmann's study by citing direct experience with specific workshops which involved several thousand people. He clearly indicated that the most successful approach to learning, including design, and delivery, was to provide the opportunity for a "whole brain" experience regardless of the make-up of the indi-

viduals within the group. This is best presented by ensuring that the session can "dynamically move back and forth in its delivery of each key learning point in order to equally distribute the learning across all four quadrants of the model." (Knowles, 1990, p. 249)

Howard Gardner, from the perspective of psycholgy, has written about learning styles in a different way. Instead of attributing various functions or abilities to parts of the brain, and concluding that individuals' learning styles are dependent on the relative development of these sections, he has attributed to humans the ability to perform in any combination of seven "intelligences". He identified the intelligences in the following categories:

1. Linguistic - the ability to deal with language, both verbal and written
2. Spatial intelligence - including the ability to create mental images, to visualise, patterns, design, direction, visual reliance
3. Logical or mathematical intelligence - involving scientific thinking, deductive and inductive reasoning, dealing with numbers and patterns
4 Musical intelligence - a reliance on sound, recognition and sensitivity to tone, rhythm, beat
5. Bodily or kinesthetic intelligence - demonstrating control of bodily movement through the brain cortex; a wisdom of the body
6. Interpersonal intelligence - where reliance on communication and relationships dominates the learning style
7. Intrapersonal intelligence - illustrated by spirituality, self-reflection, and an awareness of the thinking processes (Gardner, 1985)

Neuro Linguistic Programming

Neuro Linguistic Programming (NLP) utilises the general framework of multiple intelligences but considers that determining the order of dominance or preference within visual, auditory and kinesthetic modes of learning is a better way of describing the learning style. Neuro linguistics alone is a highly sophisticated tool for teachers to incorporate into their practice, and the influence of NLP can readily be noted in educational kinesiology as well as a range of other cognitive styles frameworks. By acknowledging and presenting work in an individual's preferred dominant learning mode, teachers have been able to motivate many learners previously labelled as reluctant or resistant. It is from NLP work done by John and Michael Grinder, and Richard Bandler, among others, that we are able to identify when people are using their visual capabilities to recall something, as opposed to their kinesthetic or auditory memory. Unfortunately the reputation of NLP has been tarnished by its inappropriate adoption in some circles. In the 1970s, some American business educators and motivators carried the information gleaned from NLP workshops to target employees. There has also evolved some lighthearted (and not so light-hearted) analysis of the truth or otherwise of politicians' public statements. By identifying which direction the eyes move when responding to a question, assumptions about the truth or fabrication of responses have been made without a

full understanding of the potential range of interpretations.

Buzan

Tony Buzan's series of books written from 1974-1993 figures in the bibliographies of many learning style theorists, and his techniques for intellectual enhancement have been widely adopted by motivators and educators around the world. Buzan elaborates on the work of Sperry and Orenstein and describes how the work was developed by Professor Zaidel, who discovered each hemisphere was capable of a huge and subtle range of mental activity. Buzan shows how the 'great brains' in history - Einstein, Picasso and da Vinci were actually 'whole brained', not left or right dominant as superficially apparent (Buzan, 1991, p. 18). His general theme is of liberating the inherent skills within the individual, and it is easy to see the influence his work has had on the development of positive thinking segments of educational kinesiology. By comparing favourably the number of possible reactions between nerve cells or neurones within the human brain to the total number of atoms in the universe, Buzan demonstrates the virtually infinite potential of the brain.

Very practical in his applications, Buzan describes several techniques to tap this potential, culminating in 'mind-mapping'. Mind-mapping is a method of revising or summarising which incorporates the use of words, numbers, order, sequence, lines, colour, images, dimension, symbols and visual rhythm to activate all facets of both hemispheres of the brain.

> From whatever perspective one approaches the question, be it from the nature of words and information, the function of recall ... or recent brain research, the conclusions in the end are identical - in order to fully utilise the brain's capacity, we need to consider each of the elements and integrate them in a unified way. (Buzan, 1991, p. 107)

Brundage and MacKeracher

Donald Brundage and Dorothy MacKeracher investigated the links between characteristics of adult learners (which included learning styles along with self-concept, past experience, stress, time, motivation and more) and the practical applications of learning principles they developed. Brundage and MacKeracher then summarised thirty-six adult learning principles, with implications for facilitating and program planning related to each of the principles. They document a series of learning principles under the heading of "Learning Styles and Abilities", which state that adult learners demonstrate individual learning and cognitive styles and abilities, which may all be present in any learning group. Any 'mismatch' of styles between student and tutor is likely to be generally unproductive, but they place the responsibility for the outcome of a learning partnership on the ability of the tutors of adult learners to be aware of their own styles, and be able and willing to present and respond to the styles of the learners. (Brundage & MacKeracher, 1980, pp. 50, 51)

Brundage and MacKeracher's facilitating and planning implications echo the

words of many involved in adult learning:

> Adult learning is facilitated when the learner can be assisted to acquire a broad range of cognitive strategies for use in various contexts....Adult learning is facilitated when the teacher can present a range of activities in which he can model different strategies for the learners, and when the teacher is aware when the learners are or are not utilizing each type of strategy.
>
> Program plans should incorporate learning activities which promote the use of all of the cognitive strategies; learning resources which focus on... information in varying presentation forms; and learning processes which vary.... (1980, pp. 115, 116)

Although the format and emphasis differs from the other research I have documented, the same underlying thread of compensating in education for less developed intelligences/skills/learning styles/specialisation occurs.

LITERATURE REVIEW - EDUCATIONAL KINESIOLOGY

Educational kinesiology and the term edu-kinesthetics were coined by Dr Paul E. Dennison in 1984. Dennison is the acknowledged founder of the educational kinesiology movement, and he based his early theories on a number of developing fields in America at the time. Early work by George Goodheart on muscle testing, and in 1971, research into new ways of utilising the Ch'i energy of the meridian pathways was instrumental, as were applied kinesiology and reflexology used by Richard A. Tyler (Savage, 1994).

Muscle testing was first used to assess insurance claims, but was developed in the United States in the 1960s by a chiropractor, George Goodheart, who concluded that it was a weakness in a muscle which created the sensation of a spasm or tight muscle on the other side of the body, and it was the weak muscle which needed help. Previous to this, the knotted muscle was directly worked on, and any tensions or pain could return as the original weakness had not been rectified (Thie, 1973, p. 10).

Reflexology was first demonstrated by Drs Bennett and De Jarnette to show how activation of skin areas with either deep massage or light touch could make the muscles move the bones, without direct bone manipulation. Dr Frank Chapman, an American osteopath, identified other reflex points (called neuro-lymphatic reflexes by Goodheart) which improved muscle function by assisting lymph drainage. Certain nerve cells or spindle cells have been noted as causing weakness or non-responsiveness in muscles by not sending on the signal from the spinal cord, and these cells can be physically manipulated to control the muscle contraction correctly. Neurovascular reflexes are those reflexes which control blood flow, and can be activated with very light contact for a few moments.

The ancient Chinese acupuncture system is based on a knowledge of energy flow in specific patterns and directions throughout the body. This system is used to map out insertion points for acupuncture therapy, and the energy is called Ch'i. Goodheart

utilised this knowledge to correlate the energy from the acupuncture meridians or acupressure vessels to muscle awareness, and developed the theory of applied kinesiology. The meridians have been technologically verified using radio-active, thermatic and electronic measures (Thie, 1973, p. 17).

Dr John Thie, DC, founder of the Touch For Health Foundation, was also instrumental in this early development of the theory. Touch For Health is described as a practical guide to natural health using acupressure, touch and massage to improve postural balance and reduce physical and mental pain and tension. All the theories mentioned so far are incorporated into Touch For Health and the whole being is looked at, not just the parts. "The primary structure and the natural chemistry work together to influence the psychological..." (Thie, 1973, p. 11) to make Touch For Health a science of energy rebalancing. The Touch For Health manual has been translated into fifteen different languages and is commonly held to be the basis for modern educational kinesiology practice.

The scientific and theoretical derivation of educational kinesiology is not a simple or clear continuum, but as Dennison says, has been,

> eclectic over the years, gleaning information and ideas from many sources. Our therapy utilizes techniques borrowed from language specialists, optometrists, and chiropractors. In a search for alternatives, we have had to go beyond the educational frame of reference. (Dennison, 1982, p. 12)

The popularity, if not the scientific validation of educational kinesiology is established by the almost continual success of the "Brain Gym" program. *Brain Gym* was initially published in 1981, and in 1994 Dennison and two co-authors published *Brain Gym for Business* with exercises modified only infinitesimally for a more mature clientele. Dennison relies on the effectiveness of his techniques as promoted by a range of clients to advocate educational kinesiology, rather than elaborate on any scientific or educational theories behind the principles.

In all of the strategies and philosophies utilised and advocated by Dennison, the principle of freeing or unblocking energy flow has remained a constant. Effective crossing of the midline of the two hemispheres of the brain is seen by him as the key to learning. He argues that it allows release of the stresses built up by the body in order to compensate for problems caused by transposed hemispheres or mixed laterality and blocked dominance. Dennison explains his findings of dominance through muscle testing (when a muscle is unable to lock when given certain mental stimuli, but is able to in normal circumstances) and states that,

> the most efficient dominance pattern finds completely consistent sideness. ... When there is consistency and complete sideness, the two brains easily harmonise and cooperate, staying switched-on for bilateral integration. When the pattern is inconsistent, and sideness is mixed, the two brains get confused about when to work and what to do. Energy is drained from the system, and switching-off takes place. (Dennsion, 1981, p. 58)

Dennison considers that brainedness (his term) is more important than handedness

or eyedness, and bases the mixed laterality exercises on the results of brain dominance reinforced by muscle testing. He states that reading, writing and spelling are predominantly left brain activities, and that people experiencing problems with these activities are more likely to have switched-off their left brain potential. Exercises which cross the midline, visually, kinesthetically and audially all serve to increase communication through the corpus callosum and therefore increase the ability of the whole brain to perform the required tasks. *Switching On* is a manual of hope for the concerned parents and frustrated teachers of the 'unteachable' .... They (the techniques) represent a revolutionary new approach to learning" and "it is never too late to get 'switched-on' to the joy that learning adds to life". (Dennison, 1981, p. 6)

Educational kinesiology in its simplest, most readily accessible form is in Dennison's *Brain Gym*. This is a series of exercises devised to maximise hemispherical integration, and also to activate acupuncture points and lengthen stressed muscles to aid energy flow. The Australian practitioners discussed in the following section all base their educational kinesiology activities on *Brain Gym*.

CURRENT AUSTRALIAN USAGE

Educational kinesiology was first introduced to Australia by Phillip Crockford in 1984, direct from a Paul Dennison course conducted in California. In Australia, whilst developing their own individual emphases, current kinesiology practitioners have retained most of the elements of Dennison's original work.

Savage

Trevor Savage, a kinesiologist and naturopath from Queensland, has integrated theories and techniques from educational kinesiology, Touch for Health and applied kinesiology and titled his approach, Integrative Kinesiology. Savage proudly states that his program is a synthesis from no less than 14 areas of related research. Savage's definition of his practice of integrative kinesiology is "to make whole through muscle response testing and whole body movement. Total mind-brain-body integration." (Savage, 1987, p. A).

Dalton

Jenny Dalton, currently working as an educational consultant and kinesiologist in Sydney, incorporates the Alexander Technique whilst retaining the original American based theory. The Alexander Technique was devised by F. Mathias Alexander who was born in 1869 in Wynyard, Tasmania. He developed his technique through observation of his own posture, proceeding to a realisation that movements in one part of the body could affect every other part. His central principle is that of the dynamic relationship of the head, neck and back which, if corrected, maximises efficient use and functioning of the whole body/mind complex. The method teaches learners to discriminate between movement and posture cues in a way which enables them to reduce or eliminate learned patterns which disallow optimum performance and function (Brown, 1980, pp. 25 - 30).

Dalton outlines several associated learning theories in her book, *Dyslexia: How Do We Learn?*, written in conjunction with a severely dyslexic client, John O'Shea. She links Gardner's seven intelligences to Neuro Linguistic Programming and expresses her opinion that the linking of these theories to provide a range of diverse teaching practices can have far-reaching applications for teaching and learning (Dalton & O'Shea, 1994, p. 77). Dalton states in an earlier paper that,

> this is also what makes Educational Kinesiology of such interest and relevance to educators. It provides a model with which we can 'relate' to the brain, a means of understanding what may be preventing people from learning effectively and most importantly, a set of techniques or tools to bring about changes in that pattern. (Dalton, p. 2)

O'Hara

Brendan O'Hara from Victoria has adapted the original Dennison exercises and included some of his own devising. He has written several books under the umbrella of his own company, Vis-Ed Learning. O'Hara incorporates Neuro Linguistic Programming, and positive thinking theories from transactional analysis, but bases activities on very basic left/right hemispherical functions. Although not directly crediting it, in 1990 O'Hara used a diagrammatic representation of memory retention almost identical to that published by Buzan in 1986.

The specific exercises used in this research have been demonstrated by Brendan O'Hara in workshops for adults and children experiencing learning problems, and also described in his books, *Vis-Ed Learning* and *The Children's Song Book*. Unfortunately, the language in these books has been over-simplified. An example of this is his statement that "proprioception is the way the brain and muscles talk to one another" (O'Hara, 1991, p. 27) when discussing the sophisticated nature of communication between nerve cells called proprioceptors and the brain stem.

Savage and Dalton both reinforce the importance of laterality re-patterning. This is a system designed to maximise hemispherical integration regardless of what the body is performing. Dalton appears to have retained the Dennison re-patterning, but Savage has considerably modified the process. O'Hara certainly mentions and uses re-patterning, but also uses the exercises with or without initial re-patterning.

Pancini and McCormack

Geraldine Pancini and Rob McCormack from the (then) Footscray Institute of TAFE have written a teachers' manual titled *Learn to Learn*. This manual explores academic learning from the learner's point of view and attempts to demystify educational institutions. The authors claim that their work draws mainly on research from the fields of cognitive psychology and applied linguistics, but some common sense and innovative handling of such topics as intelligence, meta-cognition, schemas and cue-consciousness make the manual quite inspirational (1990, p. 46 - 51).

Pancini and McCormack directly link left/right hemispherical discussions with

Tony Buzan's mind-mapping techniques to reinforce the concept that the right hemisphere attribute of patterning allows the learner to absorb many more pieces of information than would be possible if only relying on the left hemisphere logic/language skills. Their stated approach "is to mention these ideas to emphasise that diagramming the relationships between ideas is a highly efficient strategy for revising and an interesting tool for thinking about approaches to study" (1990, p. 48).

Burn

Stephanie Burn is a trainer of educators and business people wanting to be more able to learn, and, although not a kinesiologist, advocates many teaching and learning strategies similar to kinesiology. She is originally from an American military post-school education where she specialised in computer engineering, and the training of miliary personnel. Burn has dealt almost exclusively with adult audiences for the past seventeen years, and came to Australia in 1987 after intensively researching learning strategies with Larry Wilson in the USA. Initially her educational role in Australia was developing the Discovery Down Under program for teenagers, but she has since spent two years each in Melbourne and Sydney training trainers. She has written several books, and developed a series of train-the-trainer videos. Stephanie Burn describes her work as dealing with "the best designed device the universe has ever produced - the human body and brain", and utilises a range of theories to substantiate her original and effective learning techniques.

Stephanie Burn traces much of the basis of her work to Roger Sperry's work in the late 1950s on left/right hemispherical dominance, but qualifies her use of simplified hemispherical theories. Burn states the left/right model is "most bastardised, oversimplified, generalised, used to do more damage to students than any single piece of science...atrociously misused. That's why there has been a move away from this model" (1992, Tape 1).

Burn is careful to state that the 1950s theories of specific locations for specific abilities such as language have been conclusively disproved by neurological research, but credits "attributes" to each hemisphere. Burn overlays these attributes to a framework utilising personality learning styles such as active, experimental, reflective etc., her overall framework reflecting Herrmann's "instrument".

What Burn entitles "attributes" correlate with the "Basic Functions" according to O'Hara, who uses terms such as analytic, focus, serial, temporal and logical for the left hemisphere. Burn's terms are verbal/language, good with numbers, linear, sequential, analysis and time. For the right hemisphere Burn states that a right dominant person is likely to be more adept with images, have an overview, be random and spontaneous, intuitive and spatial. O'Hara concurs with the use of the terms overview, diffuse, simultaneous, reflex, intuitive (O'Hara, 1991, p. 24).

Burn makes a number of points which should be heeded by those utilising kinesiology:

- the corpus callosum can be up to 20% larger in females - giving them a greater

opportunity for communication between hemispheres
- lateralisation of the hemispheres starts at about 4 years of age for both sexes, but females have completed the process by 7, whilst males generally need till 11 or 12.
- 80% of "learning disabled students" are male.

These observations have been corroborated by both early schooling and adult literacy research. Girl students demonstrate superior language skills from age 4 to 7, then boys slowly catch up. Sixty to seventy% of all adult literacy students are male, and many of the female students have specific maths phobias as their major problem, slightly skewing the figures. Many older men now appearing in adult literacy programs have been unemployed for a long time since leaving semi-skilled or unskilled jobs. Their previous practical learning on the job was largely kinesthetic, and was probably the only learning with which they had been comfortable. Their early lack of literacy learning has remained with them (Campbell, 1990, p. 4). The generally accepted figure of 10% mininum of the population needing literacy help is explained further by Dennison's assertions that 75 - 80% of the population are right-handed and right-eyed; these people are left brain dominant and few learning problems exist. Twelve% of the population are mixed dominant, and this group includes most dyslexics and over half the "learning disabled" (Dennison, 1981, pp. 58, 59). The majority of this latter group are male. Learning difficulties are of course not unique to males, but remedial education statistics are dominated by males. Many female students come to adult literacy displaying both general and specific learning difficulties, including dyslexia.

That the practitioners have been eclectic to the point of plagiarism across a range of ancient medical practices, psychology, 'new age' alternative medicine, and educational theories and models, is probably the major contributing factor for the continuing scientific cynicism regarding Educational Kinesiology, yet the most persuasive argument for its practical applicability.

Several of the major exercises used in educational kinesiology have a history far preceding the use of the term, as they have their roots in ancient eastern therapies such as acupuncture. Many of the exercises promoting the activation of pressure points are directly utilising the energy flow from acupuncture points and knowledge of body meridians.

The infinity sign, sideways eight, or in Brendan O'Hara's terms Active Eight, has been used for a long time by a range of practitioners to facilitate reading, as exercises making the eyes move across the midline have been documented by both optometrists and educators to be beneficial for optimum eye function.

Cross-crawling was initially used as a "cure" for neurological damage. It is the basic educational kinesiology exercise, and is a marching action, but with the opposite arm and leg moving. It was devised after years of research by physical therapist, Dr Glen Doman and his colleague, a psychologist, Dr Carl Delarcarto, and used widely in American schools in the early 1960s. The results became inconsistent in wide practice, and although it was still advocated by developmental optometrists, as quickly as it became popular, ceased being used.

Even the modern social science of "connectionism" has its roots in the earliest kinesiology research as the original Touch For Health manual stated that a muscle could only contract and perform its specialised task if all the "connections" are made in the nervous system.

International field trials

The following field studies in the last few years have evaluated the use of educational kinesiology (generally in the form of Brain Gym exercises), and form part of a compilation edited by Dr Josie Sifft.

1. *1991, Canada.* Nancy McGovern, the District Physiotherapist for the Deptartment of Special Services, piloted a program involving a total of 600 students in 10 schools. The purpose of the study was to determine the possible inclusion of Brain Gym movements in the curriculum for learning disabled students.

The program was evaluated by a number of methods: teacher observations, two established developmental tests, and feedback from parents, students and educators.

Results from the majority of involved teachers indicated improvement in work, increased focus, increased self-awareness, less moody behaviour, increased confidence with spelling, writing and maths; also, improved reading, organisation and productivity of the key students.

All teachers involved indicated an interest in using Brain Gym beyond the pilot program. All but 3 of the 30 classes involved (with some individual students resisting) indicated a wish to continue.

2. *1989 and 1990, Israel.* Jeanette Primost, educational kinesiologist used Edu-K with high school students diagnosed as having learning difficulties such as dyslexia, dysgraphia, co-ordination problems etc. for a six-week period.

Evaluation was in the form of measuring grades, and feedback by students, teachers and parents measuring three areas of learning improvement, motivation and the students' personal feelings.

Results indicated that 7 of the 12 students improved noticeably. Some students felt they had improved in self-confidence, concentration, and the ability to take on responsibilty: areas which could not be objectively corroborated.

The time frame of the six-week workshop was deemed insufficient.

3. *1989, USA.* George and Colleen Gardner implemented Brain Gym in a two-week wilderness program for pre-teen and teen-aged students.

Pre- and post-academic testing was conducted using three established developmental tests.

Results of the 23 tested participants showed an average reading age gain of almost eight months, and an average maths gain of about six months.

4. *1989, USA.* Twenty-three students enrolled in a remedial summer school were subject to Brain Gym activities and Dennison Laterality Repatterning with reading and maths remediation. The classes were conducted over a four week period totalling 48 hours of instruction.

Evaluation was in the form of pre- and post-diagnostic screening tests, Edu-K muscle testing, and video filming of coordination exercises.

Results showed a higher than expected (by the school district administration) improvement in both reading and maths, and a general improvement in coordination skills.

5. *1987-1990, USA.* Robert Eyestone, an educational psychologist, conducted a study aimed at measuring the effectiveness of Edu-K repatterning pre-checks to determine processing of visual and/or motor information.

Over 1400 participants were tested using a muscle response test to the visual stimuli of "X" and "II" symbols shown separately. Those whose muscle testing showed stress at the "X" symbol and relaxed at the "II" were identified as one-sided processors at the time. Two groupings of participants were identified. One included people considered "at risk," such as prison inmates, drivers in Driving Under Influence Rehabilitation groups, drug and alcohol dependency group members, special education students, intellectually handicapped persons, and school administration referred students. The other group was a control or "normal" group, such as a high school class.

Results showed a high correlation between people identified by the testing as one-sided processors and those in stress, drug, delinquency or special education groups (and therefore identified in the testing as "at-risk"). These results also correlate with existing, long-standing research indicating high proportions of people displaying mixed hemispherical dominance amongst prison populations.

6. *1989-1990, Hawaii.* Carla Hannaford, an educator and neurophysiologist, implemented a year-long program of Brain Gym in the classroom amongst 19 students in a Special Education fifth grade.

The Brigance Inventory of Basic Skills for Reading, Comprehension and Math was used at the beginning and end of the year. Brain Gym exercises were included in the general classroom activities for a few minutes several times daily. Individuals were muscle tested, and selected Brain Gym work was allocated.

Results showed that all 19 individuals displayed an improvement in reading age of between one and two years, and lesser but general improvement in maths. Carla Hannaford also noted her observations of behaviour improvement.

7. *USA.* Twenty-two first grade students, with class teacher Mary Ann Wittle, participated in a ten-week program incorporating Brain Gym exercises and Dennison Laterality Repatterning.

Pre- and post-checks in several areas of expertise were conducted.

Results showed all 22 students improved (or had perfect pre- and post-test scores) in printing letters and numbers without reversals, and auditory discrimination. Seven improved (12 perfect) in ability to read words without reversals, and 16 improved in alphabet recognition and matching designs.

The marked improvement in number and letter reversals in this age group was considered significant and the conclusion reached that the Edu-K had made these students in some way more efficient learners.

8. *1986-1987, Australia.* Peter Whetton wanted to determine whether the inclusion of Brain Gym activities in a Special Education classroom would have an effect on the attention span or academic skills. The project was conducted in three parts, but by the third part, Whetton had no control group to measure against. In 1990 he wrote a retrospective, which concluded:

> I have now completed a long term study of outcomes on these students. I do not claim the research as anything more than subjective, ...all the students quite strongly wanted to be part of the Brain Gym. This left me with no control group.

Special outcomes were observed to be huge improvements in academic progress, self-esteem, confidence, behaviour and social relationships.

RESEARCH METHODOLOGY

Outline of research

1. Establish area of need to examine.
2. Select students for intensive research.
3. Select appropriate educational kinesiology exercises.
4. Have students work through exercises (whilst being tape recorded)
5. Evaluate cognitive and emotional responses.
6. Document and present.

1. Establishing need

Adult Literacy students currently studying with a Tasmanian Adult Literacy Unit were informally asked what their major concerns were in relation to their progress with study. These students were not selected, but were simply the students in the building on days when I was at work.

All twenty students were currently working in group learning environments, and were accustomed to making decisions about their learning. The students were casually spoken to in coffee breaks, or whilst visiting their room, or when meeting them in the corridor. All twenty students were asked the following questions:
"Is there an area still worrying you with reading, writing or maths? If so, what is it?"

Table identifying student responses

Student No.	M/F	Reading	Writing	Maths	Other (specify)
1	M	x	x	-	spelling
2	M	-	x	-	spelling
3	M		x	-	punctuation, spelling
4	M	x	-	-	-
5	M	-	-	x	-
6	F	x	x	x	everything!

(cont. overleaf)

Table identifying student responses *(cont.)*

Student No.	M/F	Reading	Writing	Maths	Other (specify)
7	M	-	-	-	-
8	M	x	x	-	spelling
9	M	-	x	-	spelling, handwriting
10	F	x	x	x	lots
11	F	-	-	x	-
12	M	-	-	x	-
13	M	-	x	-	spelling
14	M	x	x	x	all of it
15	M	-	-	-	spelling
16	F	-	x	-	spelling
17	M	x	x	x	lots
18	F	x	-	-	spelling
19	M	-	-	x	-
20	M	-	x	x	spelling
Total		8	12	9	14 spelling
M	15	5	9	6	11
F	5	3	3	3	3

2. Selecting students

I selected one group of students to use as the basis for this paper. The group consisted of two female and three male students. All had been coming to Adult Literacy for quite some time; the group was a congenial, cohesive group, and there were few secrets between them regarding their literacy learning.

All the individuals were happy to assist me in the preparation of this paper by participating in the exercises. With their permission they were tape recorded during the exercises and transcripts were made to evaluate responses. I also discussed the activity with the group as a whole, with the tutor participating.

No preparation in the form of muscle testing or description of activities was done. As documented in the transcripts (Appendices III - V), I outlined the method and the purpose of the activity to the participant. I chose the spelling exercise as it was a separate identifiable activity, and one which bore little or no resemblance to any previous work the students may have done with spelling, and because it was a major identified problem for students currently working in the unit.

Joan was selected as the key student for several reasons: (a) She had a long history of literacy tuition, which meant she had been exposed to a variety of methods, teaching styles and educational environments. This also meant that her tutor would be able to give me valuable feedback on Joan's "usual" learning responses and retention. (b) Joan had proven to be extremely reliable, and since she was a long-term student with her present unit, this meant I could realistically expect her to be available for the duration of

the project. (c) Joan was an articulate, interested, opinionated learner, whom I could expect to *really* respond to my questions concerning her reaction to the exercises. (d) Joan demonstrated dyslexic problems. Her spelling remains very poor, despite a good general skill range in other language activities such as speech, reading, comprehension, etc.

Case study: Joan

Joan has been attending adult literacy sessions for about three years. Initially her sessions were held on a one-to-one basis, then for almost a year Joan attended one group session and one individual session per week with the same tutor. For the past 18 months, Joan has attended two, 2-hour group sessions per week, with her interest, skills and reliability all increasing to the point where Joan has only missed one session in the last six months.

At her initial assessment, Joan demonstrated only very basic reading skills. She could read some very simple texts, but had never had reading material matched to both her reading and interest level. Joan rapidly progressed from adult literacy student-written books to simple readers (at about grade 4/5 primary school level) with the main tutoring emphasis being on practice. Suddenly, at this stage reading "clicked" and Joan went straight to adult books, choosing her own from the literacy unit or state library on an interest theme. She was persistent in her reading approach, and would read aloud to her tutor, sounding out and breaking up unfamiliar words, or read silently to herself. At this stage Joan did not worry unduly about understanding or being able to pronounce *all* the individual words: she was, and still is, primarily concerned with being able to gain meaning from the text.

At initial assessment Joan's writing/spelling skills were minimal. She demonstrated bizarre, inconsistent errors with a correct vocabulary of only about 20 - 30 words. Her sentence structure was virtually non-existent, with no evidence of punctuation. She had considerable trouble developing self-editing skills, and even now her tutor has to point out most errors. Her major frustration was, and is, with spelling. Her skills with sentence structure have developed quite well with her tutor formally teaching the basics such as punctuation and tenses, and querying Joan's grammar. Several different approaches intended to improve Joan's spelling have met with little success: Flash cards were a failure, as were memory exercises. Joan appears to have little, or poor visual memory, as demonstrated by the fact that she may spell a word differently every time she uses it in a text, and frequently reverts to incorrect spelling after having correctly written it a number of times. The only real technique Joan has been able to use successfully with her spelling has been with mnemonics. Joan calls these "keys" which help her unlock the correct spelling to difficult words. An excellent example of this is Joan's continued problem spelling her now home-town - Burnie. She consistently writes it as Burine, following the more conventional ending pattern . Her mnemonic or key is to recall "the knights of nie" from a Monty Python comedy film.

Three years, hundreds of contact hours, and thousands of hours of private labour

by Joan have caused a tremendous improvement in most areas, but she is still blocked by a long term memory disability. Any new skill requires concentrated consolidation, and seemingly no matter how thoroughly 'learnt' a new word or skill is, Joan will lose it within a month, unless it is revisited and revised.

Joan was introduced to a single educational kinesiology exercise - spelling from the visual cortex - at this stage. No muscle testing, or preparation, was carried out. Joan was asked to assist me in research for a paper, using techniques I hoped may be able to help adult literacy students.

The words Joan learnt with the educational kinesiology exercise lasted correctly for longer than usual, and longer than her tutor expected. The word "mortgage" was retained correctly after delays of one week, two weeks, one month and three months. After the Christmas holiday break and a further two months, Joan had lost the word. Joan remains interested in the concept of educational kinesiology and is keen to glean more benefit from this type of exercise. Joan stated she had never had such clear recall of a word before: in fact, she proclaimed the word was stamped across her forehead every time she closed her eyes.

Joan has good dictionary skills as she is usually able to work out the initial letters. She certainly used the dictionary extensively for words for this article. She is also usually able to select the correct word from the series of alternatives given by the computer spelling check.

The following is a piece of unedited writing by Joan written in April 1995 using MS word on an IBM-compatible PC.

The Diary of Jack the Ripper is about James Maybrick, his faimly and the life he lead out side. The name Maybrick came to publice notice back in the late 1800.

In June of 1889 Flow Maybrick was charge with the merder of her hasbent James. She was acqude of poising him,You may say that ther is nothing new in a women killing her hasben but woth mad it so taked about was the facked that Mrs Maybrick was a sothen bell marride to an english gentelmem, and she was the fist American women to be given the deth sentens in enlande, if it wasn't for this facked we wouldn't know much about them at all.

In 1992 a diary was foned. In side was the tale of a man,due to drug abuse became one of the wolds best know seial killer.

James Maybrick like many men of his time, liked to take things like arsenic and cyanide. These to drugs are like the equivalent to cocaine and crack in todays worls. This drug abuse did not do that much for him, he was always complaining of headaches,cold hands and the back of his hands being itchy as well.

When James found out that his dear Bunny (Flow) was having an affair, he became quite disort, and after some time at the ale house he decided to make all of England pay, for his wifes infidelity and This was the beginning of his line of terror, this is also when he increased the amount of medicine he was taking. He thought this extra medicine was important to give him the stangth to do the things he wonted to do. More importantley this is where his line of thought becames more worpped and demented, and his wife stops

being his dear Bunny and becomes the hoare and her lover becomes the hoare master. James Maybrick killed six wemen between 1888-9 but tenecley he ownly killed five, the fist one was a test kill. The name Jack the Ripper is like James had hoped it would live on forever.
As I side befor ther is noteing new about seial killers but woth made James Maybrick go down in historey books is the simpale facked that the was the fist to give himself a name.
The writing demonstrates unequivocally the difference in skills level between Joan's spelling and her obvious grasp of research skills, reading, comprehension, syntax etc.

Background
This is Joan's own account of her background. I have not attempted to verify any details, nor did I question any of her recollections.

Joan suffered a childhood of considerable trauma. She did not live with her natural siblings, and endured a violent domestic environment culminating in seeing her mother killed by her stepfather. There was no reading or writing model in Joan's early life which she considers to be a major factor in her own literacy problems. All the family she recalls on her mother's side experienced learning difficulties, and Joan has received remedial help since grade 4. The domestic situation was unstable in many ways: Joan remembers enrolling in eight different schools in one year when she was only five or six years old.

By grade four, Joan was still unable to read or write. Her problem had been ignored until then, but from grade four on, she received virtually continual remedial assistance, her recollection being that this was mostly in the form of flash cards of sight words. Joan repeated grade 5, and was given peer support tutoring in grade five and six. In high school Joan received two half-hour sessions daily with a special education teacher in reading and maths.

Joan left school in grade nine, with few skills, low esteem and scant respect for the education system. After working for a couple of years she enrolled in a literacy course at Sydney TAFE for six months, but found the group work did not meet her needs. After a one-year break, she tried a literacy course at Brisbane TAFE, and although there was individual work within the group this time, she still did not make significant progress.

When Joan moved to Tasmania her boyfriend motivated her into trying literacy again, but as she has perservered this time, Joan recognises her own improvement and sees sucess building further sucess. Joan attributes much of her success to her tutor, and the variety of work she is presented with. Joan states her pride in reading for pleasure - a phenomenon she never expected to enjoy - and her new found skill in mental calculation. She is also pleased that her imagination is respected, and she is able to write for herself as well as for her teachers.

Profiles of other students

Frank is a thirty-year-old man with an unenviable past. He has lived in a variety of fos-

ter homes and institutions most of his life. He is the sole parent of two small children, and he takes their education very seriously. Frank spends a lot of his time at the children's school and playgroup "with the other mothers", and sees hope for his and the children's future through improving his literacy and therefore employment prospects.

Frank has been attending adult literacy for about three years, though fairly irregularly due to part-time work commitments and parenting responsibilities. At initial assessment, Frank had a minimal spelling vocabulary, but enjoyed reading. He progressed quickly with reading, comprehension and writing, but still has considerable spelling problems exacerbated by poor long-term memory. Generally Frank is able to sound, visualise, or work out short words from lettter patterns, but when faced with long words, his word attack skills are not adequate and he misses most of the middle out. Like Joan, Frank's spelling skills are far below his skills in most other areas, and he would be considered dyslexic, or to have specific learning difficulties.

Brenda, a twenty-eight-year-old woman, came to adult literacy primarily for assistance with numeracy as she is the treasurer for a support group, but found herself enjoying the social and educational climate. Brenda has no children, but cares for her invalid husband at home most of the time. She has been studying both literacy and numeracy for about six months, and has improved in most areas of literacy, but still has a maths phobia to overcome. Brenda's spelling is generally quite good, but tends to be phonetic when faced with unfamiliar or long words.

Alex is a fifty-three-year-old man, who came to Australia from Holland when he was four years old. Although English has been his major language for this length of time, he still displays problems with sentence structure, tenses and conjunctions. Alex's problems are widespread: He has only a very basic understanding of numeracy, and virtually none of metrics. He has scarcely written since leaving school, but has well formed handwriting. Alex is loathe to write anything from his own imagination, and attempts to turn all tasks into copying exercises. His tutor does not have a high expectation of much improvement, but recognises the slow, gradual development of a very long term student. With familiar words, Alex has quite reasonable spelling retention; but generally when faced with difficult longer words, is unable even to attempt to write them.

The fifth member of the group is **Martin**, a forty-year-old man with an overwhelming obsession with Holden cars. His knowledge in that area reigns supreme. He is able to discuss and write about them, spell relevant words and read manuals. Unfortunately, this ability does not flow through to other areas, and generally Martin is a very quiet, slow student who has made gradual, slight improvement in all areas. He has been to adult literacy classes twice, once with a one-to-one tutor, and this time within a group. Generally, Martin's spelling strategies are phonetic: He is able to identify most phonetically regular words, but has considerable trouble if they are not phonetically regular.

3. Selection of exercises

The following is an outline of several educational kinesiology exercises presented by Brendan O'Hara at workshops in 1992 and 1993. I will follow the O'Hara version with a summary of Dennison's as shown in his *Brain Gym - A Teacher's Edition* and *Brain Gym for Business* books.

Cross-crawling

This movement is the basis for a good deal of educational kinesiology work. The participant is asked to march, but using the opposite hand to touch each alternate knee when raised. It is important to move each hand independently - do not allow the loose arm to swing in unison with the active arm. O'Hara states some of the benefits of cross-crawling as improved left/right coordination, spatial awareness, hearing, vision, spelling, writing, reading and comprehension.

Dennison gives a simplified history of the movement, by acknowledging its history of use by psychologists and physiologists in conjunction with the use of crawling like a baby to maximise learning in *Brain Gym - A Teachers Edition*, but without naming any of the theorists.

Active 8s

This exercise uses the body to trace an eight on its side, or infinity symbol. Draw a large figure on, for example, a whiteboard, with the participant's own body lined up on the midline. Draw with a definite mid-point and continuous movement. It is best when the figure is large enough to involve the full visual field and extension the of drawing arm, which should alternate. Start on the midline and move anti-clockwise. Draw at least three figures with each hand. The stated benefits of this exercise include improving the mechanics of reading, decoding written language, reading comprehension, eye muscle relaxation, balance and coordination.

It is interesting that Dennison's terminology for this is the Lazy 8s! Once again, in the simplified history, Dennison documents the use of this figure by Special Education teachers who have long recognised its usefulness in reducing letter reversals and reading transpositions. In *Brain Gym for Business* Dennison has modifed the exercise to be performed by adults by tracing the shape of the sideways eight in the air with the hand in the position of a "thumbs up" gesture, and focusing the eyes on the tip of the thumb.

The infinity symbol exercise is adapted by Dennison originally, and then O'Hara, Dalton, Savage and undoubtedly others. A particularly relevant exercise is to have a participant follow with his/her eyes the movement of a pencil shaping the sideways eight about 15 - 20 cm from the participant's eyes (as if hypnotising them). The pencil should be moved at a slow but comfortable speed, making sure the midline correlates with the space between the eyes. The partner moving the pencil should be aware of the eye movement, noting any racing, jerking, cutting of corners, particularly when crossing the midline.

Alphabet 8s

This exercise uses the lazy eight shape as the basis for developing an awareness of the shape of lowercase letters. Best when done large, the infinity sign is drawn on a board, paper or traced in the air. All letters fit one of two patterns: The letters a c d e f g o q s are formed in the left field. They start on the curve near the midline and move up and to the left to form their shape. The letters b h i j k l m n p r t u v w x y and z are formed in the right field. They start with a down stroke on the midline and then move to the right to form their shape. The Alphabet 8 repatterning of the alphabet is claimed to be Dennison's unique adaptation of the lazy eight movement, according to the text of his *Brain Gym - A Teachers Edition.* Benefits of this exercise are stated to include improved symbol recognition and penmanship, spelling, creative writing and improved concentration.

Double Doodling

O'Hara has extended the original Dennison exercise and presents it as a five- or even six-part exercise. It is best done on large sheets of paper on a table or floor, or a whiteboard. For each stage a line should be drawn down the centre of the sheet. Participants should be armed with two free-flowing pens or markers, and should be encouraged to focus their eyes as much as possible on the midline.

1. Draw random lines, patterns, doodles with both hands on own side of paper.
2. Draw symmetrical patterns, concentrating on down, up, out and around shapes. Begin close to the centre line.
3. Draw identical pictures concurrently. These will generally be mirror images.
4. Begin with both pens near the centre line. Write the same message with both hands. This means the left hand will be mirror writing. (This may be modified if required for left handed writers.)
5. Write the same message with both hands at the same time, but have hands move in the same direction. Generally, begin at the left side of both sections of paper.

The optional sixth stage is to attempt two separate messages at the same time.

This exercise is supposed to improve writing, spelling and maths skills. Dr Dennison attributes the origin of this exercise to an optometrist, Dr Gettman, who documented increased visual flexibility and skill when children performed bilateral movements.

Spelling from the visual cortex

I was first introduced to this spelling activity when it was demonstrated by Brendan O'Hara in an introductory session conducted in Burnie in 1992. I was able to view it performed again, in full detail, at a workshop designed for primary teachers, and there, fully documented it. My documentation was validated by O'Hara in his *Vis-Ed Learning Seminar Workbook.* I have trialled it as an exercise with several adult literacy students before this research, and also have demonstrated this and many other educational kine-

siology exercises in adult literacy tutor staff development workshops conducted by my ALBE unit. (The exercise requires participants to have identified their visual recollection area by visualisation techniques.)

Write the word in large clear letters on card. Have the participant sit comfortably with head straight to the front. The participant should be encouraged and reminded to keep the head straight and only move the eyes. Situate the card so the participant activates the visual construction area (at the opposite end of the forehead to visual recollection) by lifting the eyes to see the word. Have them look at it with intent, shutting and opening the eyes several times. While the person still looks at the word, move it slowly along to the visual recollection area. Now ask the participant to "photograph" the word, making sure the whole word is photographed, not a letter by letter attack. Ask the participant to shut his/her eyes and verify if the "photo" is there. Repeat until the "photo" is clear. Take the card away, and remind the participant to turn the eyes up to the visual recollection area, and ask them to spell the word. To check if the word picture is really there, ask the participant to spell the word backwards.

This particular exercise is not documented by Dennison, but is used extensively as part of a spelling program by O'Hara. Dalton also describes this activity in her book, *Dyslexia: How do we Learn?* (pp. 89-90). Most of these exercises are presented by Dennison, and O'Hara to a lesser extent, in conjunction with a range of acupuncture meridian theory and muscle lengthening activities. The activites are given cute names, such as "Brain Buttons", "Thinking Cap" and "The Owl", in keeping with American-based marketing strategies.

"Brain Buttons" are the last acupuncture points of the kidney meridian. Gently rub the soft tissue under the clavicle to both sides of the sternum for 20 - 30 seconds to stimulate brain activity.

"Thinking Cap" stimulates the rich field of acupuncture points in the ears to improve auditory skills. Hold the lobe of the ear between thumb and finger and gently unroll the edge of the ear from top to bottom.

"The Owl" is promoted as releasing shoulder stress by lengthening neck and shoulder muscles. It restores blood circulation and the full range of movement to the brain. Grasp the shoulder with the opposite hand and squeeze firmly. Turn the head to look back over the shoulder. Breathe deeply and pull the shoulders back. Look over the other shoulder, opening the shoulders again. Drop the chin to the chest. Breathe deeply, letting the muscles relax.

4. Process of conducting exercises

Each student was asked individually to assist me for about ten minutes. We went to a small room commonly used for individual tuition while I gave a quick explanation of what I wanted. I advised the students that I wanted to try out a new kind of exercise which might help them with spelling, that I was writing a paper for a university degree on it, and could I please tape the process so I could be really accurate when writing it down later? I received only positive reactions, so immediately commenced.

1. Students were first asked to spell a couple of words I thought they would be unlikely to be able to spell correctly.
2. The students were then led through a quick visualisation exercise to identify their visual recollection area.
3. The kinesiology exercise was then explained and worked through until the students were able to spell the word correctly backwards.
4. Finally, the students were asked their opinion of the exercise.

EVALUATION OF EMOTIONAL AND COGNITIVE RESPONSES

Discussion

None of the students selected for this exercise had any prior experience of educational kinesiology techniques. All students knew me: I had either interviewed them at enrolment, tutored them, or just become acquainted with them through the course of their time with Adult Literacy. I am aware of several points which may cloud any objective judgements: (a) The inherent inequalities in a tutor/student relationship, (b) the generally passive learning style of adult literacy students, and (c) a natural inclination not to offend - in particular when the students knew it was an area of personal interest to me.

I use an amended conversation analysis technique to provide one view of the emotional responses (see Appendix I for transcription conventions). Anecdotal evidence, my reflections, and the expressed opinions of students involved in the exercise will form the major part of this qualitative research section.

From a tutor's point of view, the rewards in using educational kinesiology can be great, perhaps because of the novelty of the exercise; when the word is successfully spelt backwards, many students have been very enthusiastic and excited. It has been inspirational to them as it has proved that their memory functions perfectly, which has been a nagging self-doubt for many. It is essential to link both cognitive and emotional success, as one provides fodder for the other. Brennan, Clark and Dymock found in their 1990 survey of literacy outcomes that adult literacy students stated the two main reasons for *liking* their adult literacy program were "Process of program (25.8%)" and "Helped/helping achieve cognitive outcome (18.3%)". These findings were validated when students were asked the opposite question: "What are your reasons for *not liking* your adult literacy program?" Inappropriate process was identified by 47.7%, 20.0% identified inappropriate content, and 9.0% stated it had not helped their cognitive outcome. (Brennan, et al., 1989, pp. 49, 51)

Reasons for liking adult literacy program

Reason	*No. of responses*	*% of total*
Hepled/helping achieve socio-economic outcome	7	0.7
Helped/helping achieve affective personal outcome	131	12.4

(cont. next page)

(cont.) Reason	*No. of responses*	*% of total*
Helped/helping achieve affective social outcome	154	14.5
Helped/helping achieve cognitive outcome	194	18.3
Helped/helping achieve enactive outcome	29	2.7
Content of program	129	12.2
Process of program	272	25.8
Likes teacher/tutor	110	10.4
Other	16	1.5
No response	16	1.5
Total	1060	100

The cognitive outcomes are difficult to separate from the emotional outcomes with the key group. Certainly, Joan retained her correct spelling of the word mortgage for longer than either she or her tutor expected. This may be due exclusively to the effectiveness of the exercise, or to Joan's heightened positive emotional reaction to spelling for a while. Dennison, Dalton and O'Hara state that educational kinesiology frees the learner from body stresses and allows greater ease of learning. Dalton says, "By building on a learner's strengths, rather than concentrating on the weaknesses, there is far more scope for the learning process to be enjoyable, relevant, and most importantly, successful" (Dalton & O'Shea, 1994, p. 104). Communication through her corpus callosum may have been improved by removing learning blocks, and allowing her left-brain facilities to operate more efficiently. Joan herself identified spelling as an area on which to concentrate, she recognised her own weakness, but now, with educational kinesiology, we have discovered a real strength: her ability to accurately visualise a word. This skill reduces her usual level of stress at the spelling task, and she is able to correctly spell. This may be an example of the "chicken and egg" scenario.

The spelling exercise done with educational kinesiology was very easy for two of the students. Both students were able to visualise quite well (although Frank needed quite a bit of encouraging and prompting at first), and the word-picture stayed clear. Neither student had any problem bringing the picture to the forefront of their minds again, and this ability remained for up to three months.

A previous student, Trevor, had been exhilarated by the freedom the spelling exercise had given him. A very intelligent man with a virtually non-existent writing history, his intellectual grasp of language far exceeded his ability to put it on paper. Once introduced to educational kinesiology spelling, he was able to transfer the ability to visualise to almost any word he had had prior exposure to (if the context was unique enough) and write it correctly. Examples of words Trevor was able to visually reproduce were those on public signs such as police, station, council, toilet, street signs, and many other words such as vehicle names and grocery items. When asked to activate his visual memory, Trevor experienced a fair degree of physical discomfort (similar to that described

by Frank in his conversation): his eyes watered, his forehead tingled and ached, and his "brain felt like it was actually moving". Trevor considered this the moving pains from a long-unused muscle, and the discomfort made him all the more determined to persevere. Unfortunately, this ability to transfer the skills seems to be limited amongst students: Perhaps some need a consistent introductory program of spelling visualisation before they can make the transfer themselves. Trevor was unusual in other learning aspects, too: He developed an intense interest in the derivation of non-phonetic words, and was perhaps more visually aware than the key students.

Another student, Leon, has a history of specific learning disabilities caused by brain damage as a result of an accident as a teenager. Leon finds writing a difficult and stressful task because his hand often does other than what his mind wills it to. Often when spelling, Leon will begin a word incorrectly, say out loud "No, of course not, " and then re-write the same wrong letter several more times to his intense frustration and humiliation. He performed the Double Doodling exercise with me, and amazed both of us with the increased fluency of his handwriting immediately after. The effect did not last, but he was prepared to perform the Double Doodling exercise before class to give himself the increased fluency. Leon said the writing now "felt natural" in a way he had forgotten experiencing. It is the "naturalness" and ease of doing the task after the educational kinesiology which is the greatest encouragement to the students, and creates the optimum mental state for successful learning.

Cross-crawling has been used in infant classes for a long time, and many midline crossing activities have been incorporated into sports training schedules. Anecdotal evidence reinforces that these students become more able and willing to attend to tasks, and the tasks become easier and more natural to perform. This is what the adult literacy students who enjoyed the exercise found: Joan, Brenda, Leon and Frank were all very keen to commence their normal classes with some form of kinesiology, as they found themselves more able to work if they did so.

Conversation analysis

The conversation analysis did not provide me with a different view: rather, it reinforced the problem I had anticipated occurring of the students wanting to be cooperative rather than analysing the process as we were talking. Nevertheless, the students' opinions varied considerably, and as turn-taking through the conversations was generally quite egalitarian, I feel confident that these expressed opinions are sincere, and not the product of a student saying what he/she thinks the teacher wants to hear.

An example of the cooperation is provided by this excerpt from a conversation with Frank. Frank is so cooperative that he reinforces with an agreement in the positive or the negative voice, depending on my wording in the previous sentence.

R: OK right good that's wrong, but that's not bad, all right I want
F: [yeah
R: you to try two words
F: [yep

R: so I'm not going to show you how to spell that now
F: [no
R: 'cause I want to try the technique.
F: yeah.

Consistently Frank gives me encouragement to continue by reinforcing my questions and statements. He also uses the same words to echo mine, either when he queries me, or when answering a question.

R: ...till you can see the word mortgage, can you lift your eyes towards it?
F: [towards it?

R: it really stands out does it?
F: [oh, yeah the 'i' stands yeah

F: 'cause sort of to remember that I've got to write it out/
R: lots and lots
F: [lots and lots of times.

In a similar manner, Brenda consistently gave a 'mmm' sound to allow me to continue, whether or not I specifically asked for some response. Brenda also laughed frequently, nodded and interspersed longer sentences with 'mmm'.

R: can you see it - all of the word there?
B: mmm

R: Which is really good because that's nothing like you wrote before, so
B: [mmm [mmm
R: obviously it's a few too many letters for you to take a photo of, so we'll just have to
B: [mmm [mmm
R: try again and/
B: mmm

R: Just a whole piece of card with the letters on it
B: mmm

Joan was the exception. Normally, Joan is a loud, communicative group member, but only gave me feedback in nods and facial expression whilst doing the exercise. Perhaps she was slightly intimidated by the presence of the tape recorder, or perhaps she was very involved in the exercise. Joan certainly became more verbose and expressive when she had been successful, and became eager to share her experience.

On my part, I hardly gave the students a chance to do anything but concur, as I would often begin and/or end statements and questions with "OK?". I seldom gave just a single response to the students, but said:

R: right good OK
R: yeah, OK point where the picture is

R: great, that's good, all right
R: good right good OK

The above conversations were between just two participants - myself and the student - but the voices of the individual students played a greater part when I spoke to the group. The group included four of the five students who had participated in the research, and their tutor, Trudi. Trudi did not volunteer any input into the conversation, so although the responses were elicited, there was far greater communication freedom for the students to genuinely express their opinions.

The group session reinforced what the students had stated to me individually. Joan, Frank and Brenda were positive about educational kinesiology. Joan and Frank were convinced that they would never be free again of the vision of their word. The visual impact for them was profound, and they could really see a possibility of success with spelling with this technique. Joan in the individual session says, "It just feels like it's tattooed across the inside of my forehead. There it is. I'm going to live with this forever, aren't I?",
and in the group repeats herself:
"It's just been there - tattooed across my forehead. I've been going to bed with it, waking up with it, eating and sleeping with it."

Frank is slightly less excited, but says in the individual session, "that i looks queer in the back of your head", ... "It's just that seeing something over here is very um, weird", and, "It's a weird sensation, I'll tell you that now, seeing things like that".
In the group he states that it is still there, "it was just automatically there", "...I don't even have to... I just... it automatically pops out", " and I haven't been practicing it either, its just been there/ so I know it's there - I can bring it up straight away"

Brenda's response is perhaps the most validating because she had been told by Frank and Joan about the exercise, but was a bit dubious about their reports. When she completed the exercise, she said, "I didn't think I would be able to ... actually see it", and "I really didn't think I'd be able to spell it"

Martin and Alex were both lukewarm in their response: Once again the barrier of politeness was apparent in their responses. In the individual session, although both men were able to perform the task and visualise the word, both preferred other, more traditional methods. In the group session they were more forthcoming; both stating that they would prefer their own way - Martin with the Look Cover Write Check method, and Alex with his trusty spelling lists. The politeness was apparent here too, as Martin took quite some prompting before he would commit himself: "Oh it's hard to say for me/","It hasn't been in me head like that ...", "yeah it's hard for me to say really/", "I wouldn't like to say really I wouldn't"; but later when I asked the group what was their preferred method, Martin agreed he wouldn't choose to do it.

R: "OK so it's not a method you would actually choose to use"
M: "That's right - it could work for some people, but I"

Alex was ready a couple of times to ensure I knew his preferred model, each time interrupting Martin.

M: I wouldn't like to say really I wouldn't
A: [This would be easiest for me
R: Which way?
A: Like that - spelling.

M: That's right - it could work for some people but I
R: [yep that that's what I wanna know
A: [I just write it then check it in the dictionary.

It is interesting to speculate about why Alex felt he could interrupt Martin, who was slightly negative about the process, but not any of the pro-kinesiology students. Did Alex feel he was supporting Martin? Did Alex feel the subject had been opened, and that he was safer to voice his views? This conversation pattern differed from the rest of the transcripts, which followed equal turn-taking by all participants.

Findings

The limitations of this research project have meant that I was not able to quantify cognitive outcomes to the extent I would have wished to, but nevertheless, these findings certainly corroborate what I have found occurs in wider practice. They also lead to the hypothesis outlined in the conclusion.

- The exercises worked: Students were able to spell specified words correctly.
- The ability to spell the specific words given in the exercise remained longer than expected.
- Most students were more than usually motivated to work after doing kinesiology exercises.
- None of the key students was able to demonstrate that he/she could transfer the visualisation skill to correctly spell other words in a different environment.
- There was not a general improvement in spelling skills.
- Some students were inspired by educational kinesiology and strongly requested more exercises.
- Dyslexic students (as defined in this study) make the most dramatic progress, and could most beneficially be targeted for educational kinesiology.

SUMMARY AND RECOMMENDATIONS

Tony Buzan describes an individual's talents as those areas of our potential successfully developed, and subjects of difficulty being those of dormant potential which could flourish given the right support (Buzan, 1991, p. 19).

Dennison offers a possible solution to learning difficulties when he states that "Educational Kinesiology teaches you to maximise a student's potential by eliminating blockages and avoiding stress which interferes with learning" (Dennison, 1981, p. 103), and considers that most learning difficulties are self created or imposed - albeit

unintentionally.

Brennnan and his Australian colleagues found that "what actually happened in the (adult literacy) tuition process was ... the key to understanding why the programs were effective in producing the outcomes" (Brennan, et al., 1990, p. 69). The factors included a suppportive atmosphere and climate, well designed groups, and a 'good' tutor. Self-confidence was shown strongly to be the foundation of literacy success.

In this research, all participants demonstrated specific cognitive outcomes: All the key students were able to correctly spell selected words after completing an educational kinesiology exercise designed to achieve that outcome. The students who enjoyed the process were positive about it and stated an interest in continuing with an educational kinesiology program. The key students who demonstrated dyslexia, in that they experienced significantly greater problems in one specific area rather than their general skills level, made the most dramatic improvement. These students also displayed the most positive reactions. Those students who expressed a disinclination to persevere with educational kinesiology, although not negative about the process, were able to state a preferred technique.

For struggling adult literacy students with a history of constant failure in an academic learning situation, educational kinesiology offers a novel, non-threatening technique. It can prove to students they have a 'perfect' memory, and it can be enjoyable to perform.

As with all teaching and learning strategies, educational kinesiolgy is not *the* answer for all students. As part of an effective teacher repertoire, it should be offered to learners to accomodate those whom it can serve best. Dennison, Savage and Dalton all deal primarily with dyslexic students, due in part to educational kinesiology being treated as 'last resort' therapy, but also because this group is targeted. My findings, both in the key group, and in wider practice, agree that dyslexic students stand to gain the most from these techniques. As both neurological and educational research suggests the majority of this category are male, a male dyslexic student should definitely benefit from educational kinesiology.

The hypothesis which this poses is that, **If the cause of the specific learning difficulty or dyslexia is due to damaged, ineffective or blocked communication between hemispheres through the corpus callosum, then educational kinesiolgy exercises will succeed, if the premises upon which they are devised are true. To establish this, comparison could be made between a control group of adult literacy students with a general low skills level displaying non-specific learning difficulties, and a test group of dyslexic male students with demonstrated high skills achievement in a related area.** If the hypothesis is correct, then the test group should show significantly greater skills development after completing educational kinesiology exercises than the control group.

Finally, I repeat and concur with Dalton's assertion that educational kinesiology may provide a model with which we, as tutors and students, can relate to the brain. As such, we can all aspire to our potential excellence.

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APPENDIX I Conversation transcription conventions

Note: The notation used in this study substantially follows that used and described by Baker and Freebody (1989), with minor amendments to suit the situation.

X:	Student (initial) talks
R:	I talk
/	latched turns (no intervening pause)
//	heard as interruption
[	said simultaneuosly and overlaps at this point
co:old	heard as extended sound
(4.0)	length of pause in seconds
((laughs))	transcriber's description
( )	untranscribable
(mouse)	uncertain transcription
so-he-is	words said very quickly
a l o n g	letters said slowly as read or written
?	question or upward intonation
.	downward intonation
, or -	minor pause
....	talk omitted
must	emphasis

APPENDIX II Transcript of discussion with group

R: Just a couple of things, yeah, what I want you all to do is write the word, that word that you had last week with me. See how you go.
(15.0)
A'right? Everybody remember it? ((Checks around table))
Great, everybody's got it right - oh right, yeah two that's right.
F: [yeah yeah
R: all right. How do you think about that as a way of remembering them? Would you have remembered those words as easily done another way? Would you have remembered them easier if you'd done them another way?
A: seems a simple word for me
R: yep OK so you remembered it without a problem.
A: yeah I did me homework but I didn't look it up, I left it there. Spelling test.
R: [OK Fair enough. yeah. But did doing it the way we did it last week make it any different to you or not?
A: Oh yeah I think it would.
R: What about you Joan?
J: I haven't even looked at the word since we had - since I sat in the office with ya
R: right
J: It's just been there - tattooed across my forehead . I've been going to bed with it, waking up with it, eating and sleeping with it ha ha ha((laughs))
R: so for you it's a stronger way of remembering/
J: yeah/
R: so would you normally remember a word like that a week later?
J: [no
no
R: how what how would it normally be for you?
J: it would be spelt incorrectly like I originally spelt it.
R; OK so to you it's a real difference
J: [oh yeah.
R: What about you M?
M: Oh it's hard to say for me/
R: right so it's/
M: [it hasn't been in me head like that. I've just been doing me homework one night I just thought oh yeah I'll write it out see how I go with it/
R: so for you it would be much the same doing it that way or doing it the other way?
M: yeah it's hard for me to say really/
R: [yeah
yeah/
M: I wouldn't like to say really I wouldn't
A: [This would be easiest for me
R: Which way?
A: Like that - spelling
R: Yep - your spelling list, yeah What about you Frank?
F: Oh if I want to learn a word I've got to write it out hundreds of times /
R: and you didn't have to with this one?
F: [na
it was just automatically there.
R: all right
F: no I find this way easier than writing on paper
R: yeah all right
how, do, do you reckon you'd be able to keep lots of words in like that, or do you reckon you'd overload?
F: well, I reckon this is the best way for me , any way for me that locks words in/
R: yeah, right/
F: 'cause the way I spelt it the first time and the way I spelt it now is totally...
R: very different mmm/
F: [very different I don't even have to I just it automatically pops out
R: OK
R: OK so as a method, do you reckon you'd be able to do it yourself at home? If you wanted to spell a word, would you be able to give yourself the picture?
A: Yeah
J: [Yeah

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F: [I reckon I could do it myself
R: Would you try if you needed a word
J: [yeah
F: [yep
R: would that be something you'd do or how would you go about it if you had a word you needed to lock in, what would you do?
F: I'd have to write it down on paper and continue to write it till it was locked in.
R: right
A: [I'd check it in me dictionary after I'd wrote it
R: yeah
F: If I'm going to learn a word, I've actually got to have the word in front of me
R: yep/
F: and just keep writing it till it locks in
M: When I was with Jennifer ((previous ALBE tutor))I at ummm umm Adult Ed once
..
R: [yeah
M: I was having trouble writing solicitor and secretary/
R: yeah/
M: and that's what she was doing - sort of holding the word up and making me look at it - really look study it
R: [yeah [yes
M: Then I'd write it, I'd get something wrong again, look up again/
R: yes/
M: I dunno I give it up in the finish - just kept writing it out, just kept writing
R: [right
M: till it sunk in
R: [sunk in yep
OK so it's not a method you would actually choose to use.
M: That's right - it could work for some people but I
R: [yep, that that's what I wanna know
A: [I just write it then check it in the dictionary
R: right yeah
A: That's the way I do it
R: What about you, Joan?
F: //I just get the word off Trudi
R: mm?

F: I get the word off Trudi, and then write it out (much laughter)
A: Oh yeah mmmm mmmm
((group laughs))
J: Well I mean if I write something out heaps of times , like usually write out three or four times
R: [mmm
J: and then whenever I've got to write it within the next hour I can usually remember it, but then it's gone/
R: then it's gone mmm
So you need another method for long term memory/
J: yeah/
R: and this one seems to work for you at the moment. It would be interesting Trudi , to try a few more words with Joan
J: [I can remember that one ( ):
R: and see if you can build up a filing cabinet of words Joan,
J: yeah
R: whether. Right well it would be really interesting to see how long the words that we work with you stay - words like mortgage and business.
A: What, are we going to do it again one day?
R: Yep, probably in a month or something like that, if that's all right?
F: [yeah
R: and don't anybody try hard to remember it in the meantime, obviously, I just mean don't bother working at it in the meantime, we'll just see if it's there
A: [put it in the background/
R: yep
F: well I know, I haven't worked on mortgage or business

R: well business is quite a hard word, 'cause it's got three s's to remember where they go,and for Frank, I know, you often confuse doubles and things around, so
F: [yeah, all the time
R: to be correct, for Frank I know that's been over a month since it's been done isn't it
F: [and I haven't been practising it either, it's just been there/
R: it's just there mmm
F: [it's just there. I mean occasionally it'll pop into me head - NOW -and I'll spell it out to meself and then go on with what I was doing before.
R: yeah
F: so I know it's there - I can bring it up straight away
R: right
F: so I know it's there, hasn't hasn't/
R: hasn't gone at all.
R:J:A: ( )
J: I know I know I know it's there for the simple fact is I turn around and I say "spell mortgage backwards"and like they'll start to spell it, but then they have to s..l..o ..w down and think of it forwards/
R: right/
J: I just rattle off backwards now, and it's like ( ) it's not hard for me at all ((laughter))
R: All right thank you everybody

APPENDIX III Transcript of individual session with Joan

R: all right, all I want to do is to umm try a spelling technique with you The idea of the technique is to actually get you to see the word in your head rather than just remember it on paper. It's called Educational Kinesiology, that's its..
J: ((laughs))
R: just to be a , but first of all I've got to find a couple of words you can't spell so:o, can you, how about mortgage, can you spell that word? Like a house mortgage.
(17.0) OK yeah that's ((spelt moreg)) it's wrong, but that's what I want
J: ((giggle))
R: it's just what I need. Umm the couple of other things I have to do first. I have to find out which sort of side of your brain you use to remember things with and which side you make up things. So what I want you to do is shut your eyes and...can you picture your coffee cup at home?
J: ((nods))
R: where... where can you see it, touch where you see that cup
J: ((touches forehead))
R: ah, good. I want you to picture your bedroom door, can you see that?
J: ((nods))
R: OK where can you see that, touch that..
J: ((touches centre of forehead))
R: OK that's right in the middle too, all right, lets try one more, ummm go and get the mail out of the letter box. Can you see it?
J: ((nods and points slightly off centre of forehead))
R: OK that's out here a bit.mmm
J: Well actually its here ((points to a different spot)) if I'm standing on the path to get it/
R: that's where you see it , is it, out there?
J: mmm
R: OK we'll try it on that side , that'll do, and we'll work on that being the side you remember , and this side being the side you make it up. It might not be, 'cause it's kind of in the middle/
J: mmm/
R: but we'll hope that's it. OK here's mortgage ((shows card)) It's got a silent 't' in the middle - just to be nasty - so its sort of mort - gage all right?
J: ((nods))
R: now what I want you to do is sit up straight with your head straight ahead, and I want you to have a look at the word, and that's the area you remembered , there ((points)) all right, so that's where we'll see if we can put it in your brain.
Now I want to bring it over here which is much harder on you , which is ((Joan moves head to follow word)) try and keep your head straight

J: [((laughter))
R: just move your eyes OK? This is the area you , where you make new pictures in your mind and this is what we're going to try to get you to do. So can you see that, there, without moving your head? (2.0)
((moves card slightly)) that better? can you see it at all?
J: yep
R: what I want - keep looking at it while I'm talking to you - try and look at it as one thing, as a picture, not just each individual letter, the whole thing as a picture. Now make your brain a camera, and take a photograph of it. Can you make your brain go 'click' and take a photo. Can you do that?
J yeah I think I've got it.
R: OK shut your eyes and bring your eyes back over to here ((touches forehead)) in your head, now, can you see that picture? that word?
(5.0)
J: ye/
R: Can you see the orange 't'? in the middle there?
J: uh hmmm
R: OK try and spell it out to me
J: m o r t g a g e
R: That's great, that's correct. What comes after the 'r'?
J: (1.0) 't'
R: What comes before the 'a'?
J: (1.0) 'g'
R: all right, great spell it backwards
J: e g a g t r o m ((with no delay))
R: fantastic - gee that was quick. That's correct ((with laughter))
J:R: ((laughter))
R: That's incredible
J: Yeah, you're right there((laughs)) I can't spell words that quick
R: yeah, nobody can, unless you can see it , you can't spell it backwards, but you must have been really able to see that there as letters and just sort of reel it off backwards. That was umm amazing
J: yeah
R: What I want you to do now is I want you to see it again and then see if you can write it. OK so see it in your head first, got it in your head? and see if you can write it down (6.0) Good OK is it correct?
J: [yeah/
R: Check it with your picture It is?
J: [yeah yep
R: great, excellent. That's really, I mean I've never ..that's fantastic how quickly you do that, really quick
J [((murmurs))oooh ((laughter))
R: and can you see that quite clearly there?
J: yeah
R: What does it feel like in your head? Does it feel strange at all?
J: It just feels like it's tattooed across the inside of my forehead. There it is. I'm going to live with this forever now, aren't I? ((laughter))
R: That's what Frank reakons
J: I can understand why
R: But you can sort of build up a filing cabinet of words that way, especially as it's something that obviously comes very very easily to you. Ah you can build up lots of words, do you have any particular problem words that you always get wrong?
J: (2.0) their
R: OK, which one? the one that belongs to other people? their jumper?
J: [ummm
I always spell it t h e r e
R: Right yep, and so you need the other one/
J: I need , yeah, usually I need the other one
R: OK well would you like to try it? see if we can put that in your mind?
((process repeated))

At the end of session, about 5 minutes, Joan had both mortgage and their securely remembered, and was confidently writing both words.

APPENDIX IV Transcript of individual session with Frank

R: can you spell mortgage, as in, you know, house mortgage?
F: mortgage ((laughs)) aah (35.0)
((two tries - moreg, then morge)) yeah
R: OK right good that's wrong, but that's not bad, all right I want
F: [yeah
R: you to try two words
F: [yep
R: so I'm not going to show you how to spell that now
F: [no
R: 'cause I want you to try the technique
F: yeah
R: the other word I want you to try is business
F: business (12.0) ((spelt as bisene))
R: OK that's wrong too, that's great, you're wonderful
F: [((laughter))
R: just what I wanted, that's wonderful. Now what this system does - there's how you spell mortgage, right? it's got a 't' in the middle which is a silent 't'. Mort - gage
F: mortgage
R: the rest of it sounds all right Now what this system does - first I'm going to have to give you a couple of minutes lead up. First I want you to close your eyes and imagine your coffee cup at home, can you see it?
F: yeah
R: Where can you see it touch/
F: [here
R: [touch your cup where you can see it
F: ((points)) yeah
R: right good OK
F: yeah
R: I want you to picture your car. Where can you see that?
F: yeah
R: here, can you see it?
F: ((laughs, points)) It's out there
R: [right good Picture one of your kids, Donny, can you see him going into his bedroom
F: yeeeah, yep
R: where, where can you see that?
F: Donny, where in his bedroom?
R: yep
F: he's over by the window
R: yeah OK touch where the picture is
F: there, here ((points))
R: great, that's good All right what I'm doing now is because when you remember things, basically you're seeing them out this side
F: right
R: [which means that things you make up for - new pictures - you'll make up the other side and that's what this process is for
F: [right
R: All right, what I want you to do, I want you to look at this ((flash card)) with your head straight forward
F: [right
R: OK can you see that at all there? Lift your eyes up but not your head , till you can see the word, can you lift your eyes towards it?
F: [towards it?
R: yeah
F: [like this?
R: that's it, yes keep your eyes on it
F: I still can't see it properly
R: OK ((moves card)) can you see it now?
F: [yes
R: Now the idea of this is to really look at this, not as single letters, but as a whole word, like a picture, all
F: [right

R: right? Green things on a white page, a picture of it. OK I want you to take a photograph. Make your brain a camera
F: //mmm a'right a'right
R: and take a photograph
F: I've got blinky eyes now
R: yeah I know it often hurts
F: right
R: OK shut your eyes and take the photograph
F: I can just see green
R [That's OK now come over here ((moves card)) move your eyes over to here but keep your head straight
F: right
R: now that's the area where you're making the new picture that's your old area
F: [right
R: ((points)) this is your new area
F: yeah well I can see that better
R: now take a photograph
F: I can see words sort of
R: OK OK well, we'll look at that again got it? as a whole thing, and take a photo
F: (3.0) yep
R: Now bring your eyes back to here ((points)) in your head ((touches temple)) as if you're looking up to about here
F: [right
R: close your eyes. Can you see a picture of it?
F: yeah I can too..
R: [OK spell it out
F: m (1.0) m o r t a g um now a
R: OK you nearly got it We'll try again 'cause you got really close, you got to here, then you said a and g, but then you weren't sure if you had the a or not
F: yeah
R: OK it's nearly working and isn't it surprising how you actually
F: [yeah/
R: see the picture
F: What I couldn't get was the a or the e
R: all right so this time you know you've got to concentrate on that area OK? All right we'll try again over this area 'cause that's your remembering area OK? take the picture?
F: (3.0) yep
R: OK bring your eyes back over here in your head. Shut your eyes
F: yeah
R: Now see if you can spell it out
F: m o r t ag age
R: nearly right again, what you're doing ((shows card)) you're going a gage/
F: ah right
R: you're making this g into an a, now what we'll do is, we'll make it ((G)) not look like that so we'll curl the tail up a bit more so it looks more like a g.
F: right
R: Right? 'cause I think that's the problem. Are you feeling uncomfortable in your eyes?
F: No, it's just that seeing something over here is very, um, weird ((laughs))
R: [((laughs))
does it feel a bit uncomfortable does it?
F: no it's OK
R: OK let's try one more time, 'cause now we know this is the bit you're going to have to concentrate on
((phone ringing interrupts for 60 secs))
F: right
R: now have you got the photograph of it?
F: yeah
R: bring your eyes back here
F: right
R: now spell it out
F: m o r t g a g e
R: that's great, look that's correct
F [phew

R: now look again and get the picture again, that's good that's really good. No you'll have to bring your eyes up here before you'll see it properly ((touches Frank's head))
F: m o r t a g, no I lost it
R: yeah, see if you can get the picture up
F [right
R: what's after the r?
F: t
R: what's after the t?
F: ga g e
R: [good right good OK , do it again, do it again from the t. get the picture. What's after the t?
F: g a g e
R: good great OK spell it from the r onwards
F: r t ga ge
R: great OK fantastic, isn't that interesting?
F: [yeah, you wouldn't think that...yeah
R: yeah
F: ((laughs)) weird
R: especially as you had trouble with it
F: [yeah
R: I picked a word that had, what's this got 2, 4, 6, 8 letters which is quite a lot to remember
F: [yeah
R: OK write it down a couple of times
F: right (9.0) ((Frank writes))
R: good
F: right
R: That's great, now, do you reckon, would you be able to handle a second word?
F: yeah yes no problems
R: [all right, we're going to try business So we're going to exactly the same with business which has got even more letters. Right business is spelt like bus -i-ness right, so there's an i you don't expect to be in there/
F: right i/
R: right that's why I've made that sort of a different
F: [right/
R: picture ((i is highlighted on card)) so you can see that
OK now we're going to hold that over here, can you see that?
F: yeah
R: and look at it as a whole thing
F: right, yeah
R: see if you can take the picture
F: (6.0) yeah
R: OK bring it back over here to your remembrance area and verify your picture, so take another one
F: (3.5) right
R: OK can you see it now from here?
F: I can see I can see the i
R: OK spell out as much as you can
F: bus i n e ss
R: Guess what?
F: What?
R: It's correct ((shakes his hand))
F: That i looks queer in the back of your head
R,F: ((laugh))
R: it really stands out does it
F: [oh yeah the i stands yeah
R: isn't that fantastic/
F: the e and the s's I don't know why they came out clear, but the n didn't come out clear. The i was there 'cause it was so long
R: yeah
F: but the n wasn't clear
R: [perhaps because it was next to the i. I don't know, but look at how you spelt it first, so it's completely different isn't it?

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F: [oh right yeah
R: shut your eyes again, bring them up to that recollection place and see if you can see it again
F: b u s i n e double s
R: right, fantastic, what's after the s?
F: What's after the s? right umm s the i
R: good OK spell it backwards
F: double s e n i s u b
R: isn't that fantastic
F: ((laughs)) yeah especially the way I spelt it! Oh that's incredible!
R: if you can spell something backwards, obviously you can see it
F: [yeah
R: else you wouldn't have been able to do that
F: yeah
R: now comes the real trick, can you bring up mortgage again?
F: [mortgage ((murmurmed))/
R: shut your eyes, bring it back to here, can you see it
F: m o r t g a g e
R: fantastic, that's correct, that's really good
F: [gee that hurts over here ((rubs forehead))
R: does it? yeah a few people have said that, and some people their eyes water/
F: yeah well they feel like they're watering
R: yeah right/
F: Hurts I know that, like I've got a headache
R: when the picture's there? or when//
F: no when, like you're sort of relaxed
R: Oh!
F: ah ah feels weirdThat's crazy that is "Cause sort of to remember that I've got to write it out/
R: lots and lots
F: [lots and lots of times I'd never thought of doing it that way That's good
R: You can't overload it, like if you try and do too many words you might find you'll mix them all up
F: mmm
R: but a couple of words at a time you can get, you can develop a really strong sort of filng cabinet of words
F: [yeah? 'cause the only way I remember is to actually continue to write it out
R: mmm well what I'd be really interested in doing is see if you can do it yourself. Bring it up in your mind a couple of times and see if it's still there next week
F: all right then
R: But don't leave it the week, try and bring it up
F: [yeah right/
R: a couple of times and spell it out or write it out
F: ah right No it's a weird sensation I can tell you that now, seeing things like that
R: Can you tell me at all what it feels like?
F: Especially if I get the picture on this side ((recollection)) it's sort of like um,mm there is a picture there but it's really like a small pain in there ((temple))/
R: mmm/
F: and my eyes definitely feel like they're watering
R: right they're not but they/
F: yeah they feel like they're watering. I never thought of doing it that way, especially the way I spell
R: All right that's great That's ten minutes now so I might do another one with you next week if that's OK?
F: [yeah, yes, no that's all right
R: well I'm pleased you got both of those
F: yeah well I didn't think I'd get them 'cause my major problem is big words
R: Do you know how many letters you can remember easily?
F: since I've been coming here, most of where I used to have problems with small words like where, there and all that well I've got that fine
R: [yeah [mmm uh hu
F: now I'm getting on to the big words and that's where I am at the moment.

APPENDIX V Transcript of individual session with Brenda

R: All it is, is a different way of doing spelling, and what I have to do first is
B: [mmm
find a couple of words you can't spell. All right?
R: 'cause if you can spell them it's not going to work
B: [mmm
R: so we need a couple of words. Can you spell scissors? Write it down.
(28.0) ((spells it correctly))
R: well that's correct, you're no good to me at all
B: ((laughs))
R: umm do you have words, any words you know you have trouble with? (5.0) Do you have trouble with longer words?
B: [yes
R: What about something like temperature? (10.0)
B: ((spells it temprature))
R: OK that's got just one tiny error - it's not much at all - just one little thing. What if I give you a really nast word, what if I give you diarrhoea?
B: oh gawd! ((Laughs))
(24.5) ((spells it diarear)
R: Oh good that's a spelling error, that's what we want. OK now the idea of this is so that - it's supposed to use both sides of the brain - it's to actually make you kind of see the word. All right?
B: ((laughs)) mmm
R: as Frank was saying how he still sees it
B: [mmm ((laughs))
R: that was over a month ago we did it
((visualisation preparation))
R: Good now what I wanted to know was which side of your head you remember things and which side you use to make things up. So you use that
B: [mmm
((points to B's right side)) right side to remember them, so that means you use B: [mmm [mmm
the other side to make them up. That's good . Ta. Now I'll just write this down.
B: [mmm [mmm
R: ((writes word on card)) (7.0)
OK now what I'm going to do - that's how you spell diarrhoea
B: oooh right
R: OK it's a horrible word. Now what I'm going to do, I'm going to hold it up - here - in the place you remember things right? Sit up straight, keep your head to the front and just move your eyes. I'm going to take it to where it's fairly hard to see it. Can you see it - all of the word there?
B: mmm? mmm
R: OK I want you to look at it as a whole thing, like a picture, not just as a letter by letter attack - but as a picture OK?
B: mmm
R: OK now I'm going to bring it over here ((to above left eye)) and this is the area where you make new pictures in your head. OK?
B: mmm
R: Can you pretend your brain's a camera and take a photo of it? Just a whole thing - make your brain go click
B: (3.0) yeah
R: OK now shut your eyes, take your eyes back over to here ((touches B above right eye)) in your head. Now can you still see it?
B: (6.0) mmm yeah
R: a little bit?
B: yeah, just a little bit
R: Well we'll take the photo again, so bring your eyes back to me here and take a photo of that word. Just a whole piece of card with the letters on it
B: (3.0) mmm
R: OK? Shut your eyes, take your eyes back to that recollection place and see how you go spelling it out. See how much you can remember.
B: [you want me to say it out loud?
R: yeah, say it out loud

B: d i a double r h o double r a
R: very close to being right, you got all that to there ((points to 'o'))
B: [oh right
R: and you got all that correct/
B: oooh ((sighs with relief))
R: which is really good, because that's nothing like you wrote before, so
B: [mmm [mmm
obviously it's a few too many letters for you to take a photo of, so we'll just have
B: [mmm [mmm
to try again, and
((B nodded throughout))
R: just think about it this time, we know we've got the first half in the photo, concentrate on the last part. OK? Have a look up here again. OK take the photograph
B: [mmm
R: think you've got the picture?
B: [yeah think so
R: OK take them back here. Can you see that now?
B: yeah ((strongly))
R: OK spell it out
B: di a rr ho e a
R: OK fantastic, shut your eyes again, go to that spot again - I want to ask you where the letters are. What's after the 'a'
B: r
R: and after that?
B: r
R: OK what's before the 'o'
B: h
R: good, can you spell it backwards
B: aeo h double r a id
R: very good, really great
B: ((laughs))/
R: isn't that amazing?
B: [yeah
R: tell me what that feels like, did that feel strange in your head?
B: yeah it did/
R: in what way
B: I didn't think I would be able to ...
R: actually see it?
B: [actually see it
R: and could you see it as a picture?
B: [mm yeah yeah yeah
R: That's interesting isn't it - that's apparantly what it's done - to use a new
B: [mmm
area of the brain - it made up a new picture and put it back here in your
B: [mmm [mmm [mmm
memory.
B: mmm I really didn't think I'd be able to spell it
R: and look how you first spelt it. diarear, there's no problem with that, but look how different it is
B: [mmm Yeah that should have been over there
R: Now can you see it and write it?
B: (12.0) ((spells it dirarrhoea))
R: OK there's one tiny little problem. Shut your eyes and see if you can see (8.0)
B: Oh I've got the 'r' in it (2.0)
R: it shouldn't
B: [it shouldn't be there
R: excellent, cross it out and write it again properly so it's in your mind.
((spells it correctly))
R: great, and it's one of the nastiest words you'll ever find
B: [yeah [yeah
R: Do your spelling words stay with you all right?
B: Sometimes - if I really think about them they stay all right, but otherwise..they don't.

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HOW DOES THE GOVERNMENT'S SPECIAL INTERVENTION PROGRAM FOR THE UNEMPLOYED DIFFER FROM WHAT TUTORS CONSIDER 'BEST PRACTICE' WITHIN ADULT LITERACY AND BASIC EDUCATION? A PHILOSOPHICAL ENQUIRY

Fay Forbes

INTRODUCTION

The Government's Special Intervention Program (SIP) has raised the profile of Adult Literacy and Basic Education (ALBE) but at the same time it has caused the tutors at ALBE to question their place and role. During 'shop talk', Adult Literacy tutors often express concerns as to how they should address the differences between Government policy and the students' perceived wants and needs. Hence, it is necessary to articulate what the tutors see as differences and possible conflicts and investigate them.

Investigations of teaching issues are sometimes undertaken on a basis of assumptions about education. Often, traditional or new theories can affect such assumptions. As this research is really on behalf of the tutors, and a journey to find where their advocacy and responsibility lies, it was necessary to question our practices, as tutors, and be aware of the unstated assumptions and their influence on what we teach.

Tutors can often recount personal anecdotes about student/tutor experiences but will also argue that they sometimes cannot see the full ALBE picture. They also recognise that with SIP funding, the emphasis and functions in ALBE have changed from a student-needs focus to a trifocal view of Government initiatives, tutors' role and students' needs/wants.

Also, it is acknowledged that interpretation depends on your perspective. The perspective can provide insights, but it also can obscure some important issues, particularly if one is unfamiliar with document subtexts (Gee, 1994). Through not knowing the subtext, tutors could be accused of having myopic vision. As the current provision for ALBE is dependent on Government funding with its focus on defined outcomes, it is necessary to become familiar with the text and interpret the subtext of the official Government White Paper, *Australia's Language: The Australian Language and Literacy Policy* (DEET, 1991). Then we can ask why tutors see conflicts, and ask how such views impinge on their role as tutors of literacy within ALBE.

To build an overall picture without making assumptions on the tutors' behalf, it was necessary to find out what questions tutors considered pertinent: Hence, a dialogue with ALBE tutors, SIP referral officers from the Commonwealth Employment Service (CES) and SIP students, was necessary to present an informed response.

My enquiry and interviews initially led into a quagmire where no particular issue held dominance. What became obvious was that the 'right' questions were not being

asked. When the research was reversed and the three participating groups were asked what questions they had, an obvious theme emerged. The theme, was similar to L. Wittgenstein's 1921 'Philosophical Investigations' in which he uses an analogy: 'becoming familiar with a foreign city, you need to get to know its streets and its structures before one can venture into its satellites'. Enquiry issues can be complex, and if you venture into the realms of conjecture before you know the basic structure and issues, you become limited to a circular journey whereby the guideposts to new roads are missed.

The Special Intervention Program, as set out in the White Paper, is the Government's strategy for implementing its policy of training a workforce for the 21st century. The motivation for this research was the tutors' comments and concerns on how Government policy, with the implementation of the Special Intervention Program, could compromise their perceived role as advocates for their students, as they were now expected to be defenders and upholders of an economic political agenda.

This enquiry is singular in that all the participants are residents of the North West coast of Tasmania. The sample group contained 15 SIP tutors and 28 SIP students.

METHODOLOGY

As there was no singular vision for the three participating groups (Government, ALBE tutors, SIP students), directions and a road map were needed for this journey. It was necessary to become familiar with their texts and submit these to an analytical enquiry. What the groups perceived as their particular signposts had to be discovered. A dialogue with the three groups was necessary to ascertain:

- whether each group of participants had their own vocabulary
- on what they placed value
- whether there were assumptions that had no empirical basis
- what their questions were.

Government SIP documents were then reviewed.

The Government's official policy, set out in the White Paper entitled *Australias's Language: The Australian Language and Literacy Policy* (henceforth ALLP) August 1991, along with the accompanying Government papers on the implementation and direction for funding from the Department of Employment, Education and Training (DEET), *Background to Special Education and Component of Employment Access Program*, Volume 7, 1993, were obtained. To be conversant with the interpretation of the official government policy, informal interviews were held with SIP referral officers from CES.

An overview of the implications of the Interim Literacy Competency Matrix (ILCM) scale meeting of students' or government's requirements was derived through literature research. The ILCM scale is applied by CES to ascertain the entry and exit levels of literacy students, plus the eligibility of people to receive SIP funding. Such funding can only be approved if students' literacy levels fall within the matrix (see the heading "Where does the tutors' advocacy lie?").

What were the tutors' questions?

Informal interviews were arranged with tutors to ascertain what questions they have of the Special Intervention Program. From this, a questionnaire that broadly covered their main areas of concern was compiled. As the tutors' concerns were orientated towards the best interests of their students, the questions mirrored their concerns:

1. What do you perceive as your students' aims/needs?
2. What do you perceive as the Special Intervention Program's aim?
3. Are SIP Guidelines broad enough to meet your students' needs/wants?
4. What yardstick do you use to monitor your students' progress?

The majority of the tutors wished to elaborate on their answers and were encouraged to do so. What was of particular interest in the expanded interviews was the tutors' concerns for the loss of autonomy for their students under large bureaucratic infrastructures - an effect that they felt does not happen within the existing structure of ALBE, where individual wants/needs are catered for, but which could occur within the SIP Program.

What were the students' concerns?

The assistance of a number of tutors was co-opted to ask their students about the students' particular concerns. From the feedback, interviews were arranged to seek the students' views on the issues that were dominant in the initial enquiry. The informal interviews, which continued throughout each student's course, were to seek each student's views on the Special Intervention Program, and how it applied to their particular situation.

At the end of their Special Intervention Program the students were asked how they felt about their particular program. The following six questions formed the basis of the interview. Once again, the interview was conducted in an informal way to allow the students to evaluate their own progress, needs and wants.

1. What were your aims before you started the Special Intervention Program?
2. Has the Special Intervention Program enabled you to meet those aims?
3. Do you think the program could be improved to help you meet these aims?
4. Have your aims changed? If so, how?
5. What do you think your next step will be?
6. Do you consider that SIP funding plays a role in helping people find employment?

OVERVIEW OF THE OFFICIAL POLICY

The White Paper set out Government policy and the method for funding Australia into a global economy. The DEET manual focused on the eligibility of people to receive training allowances.

In 1991 the Government issued the White Paper (DEET) outlining the strategic directions and funding that is to be adopted to implement what it perceives as the needs of Australia for the remaining decade of the 20th century. The needs were identified as sustainable prosperity that will assure Australia of prestigious global status. In this, it

is assumed that what is good for Australia is necessarily good for all Australians.

Poor literacy skills is seen as a major problem requiring a government response. While it is recognised that measuring literacy is problematic (Wickert, 1989) Government proffers the theory that competence with literacy practices enables economic growth.

While the White Paper does acknowledge that literacy is of "...importance to the individual Australian's personal, social and cultural development" (p. XIV), its main thrust is a conceptualised vision for a "...more dynamic and internationally competitive Australian economy" (p. XIV).

The Government's vision of Australia in the 21st century is the driving force behind the funding of the Special Intervention Program. The Government sees the changing position of Australia, within a global context, dictated very much by economics: "To the extent that poor language and literacy skills are affecting industrial productivity, there is now a much stronger incentive for governments, business, industry and the individual to raise language and literacy skills in the workforce"(DEET, 1991, p. 21).

Paradoxically, the White Paper also targets existing skills that it considers will inhibit Australia's capacity to compete within a global context. The White Paper correlates literacy courses with job skills training, (DEET, p. 21) and in so doing predicates the need for Australians to become economically viable.

DEET's guidelines for funding to comply with the White Paper are set out in *Background to Special Intervention*, Volume 7, 1993. The White Paper identifies, as its overall theme, how it aims at reaching its perceived economic needs for the 21st century, however, it incorporates the aspect of personal advancement of the individual. The rationale behind the directives of the CES put very little emphasis on this integrated aspect. The CES's main target areas as set out in their selection criteria for suitable clients for SIP funding are stated as:

- outdated workskills
- employment-related personal development needs (Section 3, p. 6).

"Special Intervention training is directed to entry level occupations and opportunities appropriate to the needs of disadvantaged job seekers, rather than training in occupations that require professional or para-professional qualifications" (Section 3, p. 6). "In offering the job seeker Special Intervention, you must be convinced that the identified 'barrier' is the job seeker's major barrier to employment or training" (Section 3, p. 7).

Job seekers are ineligible under section 3, page 17 for "General education/interest courses that do not provide a basis for progression into employment or training".

The paper states quite clearly DEET's objective for SIP funding implementation: "For the purpose of Special Intervention, a valid outcome is employment, education, training or linkage to another labour market program which will enhance the participant's job readiness." (Vol. 7, p. 44)

What is the Government's agenda for setting up the Special Intervention Program?
The questions to establish vocabulary, value and assumptions, as set out in the

Methodology section, were applied to the official texts. Both documents set economic parameters for the delivery of the Special Intervention Program and of its implied outcomes. Economics was the overriding concern of the White Paper (DEET. 1991) and the DEET, SIP directive (Vol. 7, 1993). These economic parameters have implications for the delivery of SIP programs, for SIP providers and for the students, and place an economic rationalist value on SIP provision.

Whereas some commentators and tutors see it as a sub-plot for a wider agenda which encompasses more than just addressing the literacy needs and wants of Australians, others see that it has a misguided focus, which is technically and historically flawed, and economically motivated. Yet others view it as the first step toward the Government's recognition that education can free adults. It could be argued that the White Paper presents a visionary prospect of Australia in the 21st century - the vision of an economic, competitive global economy; of individuals becoming proficient in English and the many accompanying discourses that 'global' conjurs up.

The implementation of the White Paper's agenda is to enhance, as it states, "...the obvious, benefits. As Australia moves towards an open economy, rewards for business and industries, which can be internationally competitive, will motivate increased productivity." (DEET, 1991, Vol. 2, p. 21) In other words, the value of literacy equates to economics and Australia's reward is a place in the economic global context.

A conflict arises with the CES's interpretation and implementation of the DEET ALLP policy. The theoretical vision for Australia which is expressed in the policy exchanges from an objective of providing literacy funding to address the need and "...importance (of literacy) to the individual Australian's personal, social and cultural development" (DEET, 1991, p. 10) to a process where the unemployed are subject to a set of criteria which decides who is eligible to participate and receive funding. Visions of equitable provisions of literacy become obscured by the need to prepare people for the workforce. The definition of 'education' in the CES guidelines of focuses on eligibility for 'entry level' (Section 3, p. 6). A narrow definition of literacy is applied, one which encompasses job/vocational skills, basic reading levels and minimum competence, as measured by reference scales.

A further conflict arises when we ask whose eligibility to receive SIP funding is administered. The DEET guidelines are specific and do not encompass the all-embracing vision of economically viable and productive skills expanding Australia that the White Paper projects: Instead, the guidelines pragmatically state that for "...many jobseekers, current labour market demand is the major barrier to obtaining employment. In these cases, the provision of additional skills that will not enhance the jobseeker's prospects of obtaining employment in the current labour market is not warranted under best use of program funds". (DEET, 1993, Vol. 7, p. 8) Also, the guidelines specify that general education/interest courses are ineligible for SIP funding/training (p. 17). One tutor likened the CES's guidelines to social conditioning a section of our community - that section being the most economically dependent on government resources. In this, economic rationalisation dictates who will be encouraged to upskill/educate to fit into

the visionary and idealistic global future. Will training/education be a wasted economic resource if spent on those who don't come up to the particular skills standard required by the assessors of 'what the global economy wants'?

SIP referral officers are given guided discretionary powers in applying the criteria for eligibility to receive SIP funding (DEET, 1993, Vol. 7, Section 3, p. 7), but the monitoring of SIP funding is to be by quantified measured outcome. "The measure of success for Special Intervention is ultimately how many jobseekers get a job following Special Intervention assistance" (p. 44). The values and assumptions that are applied to education by the White Paper (ALLP, 1991) and its implementation policy administered by CES cause concern to most of the tutors who were interviewed. "We want them to read the job advertisement board; at ALBE they want them to read *War and Peace*". Though the preceding quote was a flippant, throw-away line by a SIP referral officer at CES, it does illustrate the differing values and assumptions that prevail between bureaucratic management and practitioners at ALBE.

Lankshear (1994) overviews current changes in what is called 'education' or educating/training of workers for the 'New Work Order' and quotes Gee (1994):

> ...willing a vision into being: a vision - which is nothing short of totalizing - of new goals and values, new social purposes and practices and whole new ways of being (new) identities, steeped in the world view of the (new) business - managerialist - organizational culture.

Lankshear wishes to put the brakes on this vision and likens it to a fairytale vision of an 'enchanted workplace'. He questions the validity of funding into being an economic vision that uses objectivity as the overriding criteria.

> Do we risk unwittingly becoming implicated in educational projects that actually deny learners opportunities to become critically informed and better defended participants in the processes which create the shape of working and civic futures and, thereby, their own (future) identities as working adults and active informed democratic citizens (Lankshear, 1994, p. 415).

Luke (1992) suggests that the link between economic rationalism and literacy has had a long, "...if not distinguished history". Sighting examples of 'human capital' model literacy campaigns, he points out that, "...there is no evidence that their reforms have led to substantive changes in literacy rates, however measured, or achieved any of the hoped for associated economic effects". He places such claims in the realms of myths, and as such they"...help nobody, except those who would use the social construction and distribution of literacy as ways of furthering their own economic and political interest" (p. 13).

THE TUTORS' PERSPECTIVE

Tutors' concerns were with using economic indicators as a way of measuring the success of educational programs. By evaluating literacy in monetary or quantative ways, their role was being debased. But this concern was peripheral to where they saw their role within the Special Intervention Programs overall aims. Most questioned what they

were to teach and they saw a conflict between the CES definitions of literacy and education. Also, many tutors questioned whose interest they were really serving - the Government's or the students? Many expressed antagonism towards the concept of ALBE being used purely as a means by which literacy skills are only to be gained in order that someone may become employed. There was a non-acceptance that vocational/functional literacy, in itself, is the answer for their students. Many reflected on the fact that they tried not to impart their own value judgements but acknowledged that what they taught was not a neutral transmission of skills.

Mass production

Within the framework of SIP there is the danger that training and literacy will be seen as a panacea for other social ills, therefore making claims for literacy that are not realistic. Literacy is seen by the mythmakers, those who consider that people's wellbeing is subjected wholly to economic parameters, as the key that will somehow free victims from the discrimination, oppression and indignity that illiteracy breeds.

Tutors find that the majority of their students are in need of basic education and that there is a conceptual gap between vocational training and the important role that basic education plays. They see that their students, with little formal schooling, will not benefit from new career pathways unless they are exposed to the basic education needed to step on the first rung of the ladder. Graff (1987) argues that "...literacy is an acquired skill in a way in which oral ability or non-verbal, non-literate communicative modes are not.' (p. 4). The literacy that society uses is school-based - regardless of whether we consider it flawed or not. This definition of literacy is accepted by many in society because it is seen as enabling people to function effectively in society. Vocational literacy by itself could effectively curtail people's ability to become familiar with the various facets of the society which has a controlling influence over them. Being conversant with only the vocational literacy that goes with the terminology required to be a plumber does not allow for the broader ramifications required to be adept at such an occupation. New product advertisements, regulations and standards, government statistics; let alone the necessary social contact, require a much broader literacy base. Deprivation of society's standard of education isolates competencies and skills, and inhibits social interaction. Without incorporating broader-based education, proponents of vocational training can be accused of controlling the outcome and the means of reaching it by conditioning and programming people to meet implied goals.

Draper (Taylor, Iowe & Draper, 1991) suggests that task-orientated approaches to literacy often ignore the students' needs and wants. He argues that programs "...which value student participation and the overall development of the individual skills of critical thinking and communication", (p. 95), give students choice.

When the question "What do you perceive as the Special Intervention Program's aims?" was asked, most of the tutors did not wish to be quoted. Typical replies were couched in words such as "take them off the unemployment statistics", "By the time they get on to a SIP they have already been put in the too-hard basket", "Baby-sitting".

Many SIP students were hostile towards the CES's directive to attend Adult Literacy but, when questioned, students stated that Adult Literacy did not have a Fordist approach of the notion of mass production towards product standardisation. Instead, they were treated as individuals and actually asked what they wanted.

In allowing their students to initiate and negotiate their learning, the tutors were confronted with the guidelines of SIP and found that these were not broad enough to accommodate their students' needs. The vocationally orientated guidelines were seen by the tutors as an inhibiting factor. Vocational/functional literacy cannot automatically create greater productivity and end unemployment. Narrowing education to vocational/functional literacy becomes a tool a government can use to create a society. Literacy for living skills/practical purposes and literacy for knowledge are inevitably intertwined, and to 'know' is to be familiar with.

Where does the tutors' advocacy lie?

SIP tutors receive an initial assessment of each student that places their students in categories according to the ILCM scale of:

1. "Kickstart English"
2. "Words at Work"
3. "Communications at Work"
4. "English Skills".

As the language and the basic thrust of the Special Intervention Program is job - or work-oriented, it is assumed that tutors will use vocational and specific workplace written and verbal articulation which is steeped in notions of educating and training a workforce. The SIP guidelines are specific in their requirements: By following these, are the tutors compromising their professionalism and customising what they teach? By being competency-based, the SIP program is by definition pre-described and pre-descriptive. Wickert (1992) discerns a similar insight when she points out that even the term training, with its connotations of a process, is being replaced by the terminology 'skill formation', with its emphasis on a measured outcome.

Tutors are very much aware that competency in understanding signs for safety, comprehending forms, preparing resumes, etc. is vital, but they also realise that their words can fall on deaf ears unless their students feel comfortable with being students.

Tutors question what value they are to address: Are they only to look at the object of Australia's economic enhancement, or should the students' wants as autonomous individuals be taken into account as well? "The more we...understand the varying circumstances and aspirations of different learners, and the better informed will be the means and processes employed towards (negotiated) learning outcomes" (Lankshear, 1994a).

Many of the tutors surveyed saw an ideological struggle between the SIP initiatives, with their basis in problematic issues that are projected along economic lines, and the historical role of ALBE. The tutors spoke of the ethos of ALBE, mainly in terms of the flexibility of approach and teaching methods that aim to address the particular wants

of individual students. One value that was uppermost, when talking about their practice, was the need to focus on eliminating the negative internalised labels that come with being a 'literacy' student. The revival of an individual's self-esteem is considered an important outcome. Tutors do not see the actuality of these values as merely academic.

The dilemma that the tutors have posed is:

- Is government policy using Adult Literacy as a way of implementing social reform so that students are being used as subjects and re-shaped to fit into government economic strategies?

or:

- Is Adult Literacy advocacy with and for the individual student, whereby literacy practitioners are to address the students' wants and needs?

These questions automatically pose other questions: What values are we to address? Are the students seen as a sub-literate class that has very little value, or are the students autonomous individuals, who have explicit aspirations and worth? Is there a conflict between personal values and institution/client/learner goals?

The national socio-political agenda as expressed in the DEET SIP manual asserts a relationship between improved literacy and employment. Classifying people according to particular job literacy skills implies stereotyping of adult learners with the emphasis on a reform agenda. Being illiterate, in the bureaucratic sense, has disenfranchised a percentage of the population. Very little emphasis is placed on individual needs, rather, utilitarian motives are used to question the tenability of adults who lack command of text. Grant (1987) viewed this as an important component in how governments should view adult learners, in conjunction with devising literacy programs:

> Skills centred functional definitions of literacy as an up-to-date kit bag of request skills, that society deems important, inevitably fall short of...(the) holistic concept of the organic relationship between literacy and adult education generally that is between literacy process and the rest of our lives.

Luke (1992) also questions bureaucratic definitions of what adult learners require and assumes that government orientated occupational literacy is simply a matter of recognition and compliance with such things as compentency scales. Luke poses the questions "Literate in whose interest?" and "To what ends?"

The DEET manual could be interpreted as answering Luke's questions - become literate or be disenfranchised. Also there is the real possibility that by looking at functional literacy or job orientated reading and writing, the bureaucracy is controlling and effectively gagging people by directing adult literacy institutions to concentrate on vocationaly orientated curricula, so supplying the workplace with people tailor-made to fit specific class and job requirements, instead of enabling each individual to understand and be in control of their own process.

Wickert (1992) points out that "...many literacy teachers...are not aware of the hidden curriculum of what they are teaching;...they do not even recognise let alone question the values implicit in the materials they use." It is not a generalisation that the tutors who were part of this survey would accept. Their awareness of these values and their

questionning of it was the matrix for this journey.

Tutors recognise that their SIP students have been directed to them to fulfil the ALLP vision: "...the objective of these programs is still primarily the placement of people in jobs" (p. 41). They are cynical about the political motivation and view the criteria for funding and its agenda as a conscious pursuit of an economic strategy that will continue to exclude a large percentage of their students from an active life of earning their own living. There is no cut-off point when someone can be classified as 'job literate'. Newman and Beverstock (1990, p. 49) point out that "literacy is not an on/off characteristic" and they suggest that government-perceived literacy needs are placing emphasis on the wrong criteria. Instead of concentrating on vocational outcomes, government should be asking whether people are 'sufficiently' educated to meet their own needs.

FOR WHAT FUTURE?

If SIP funding is to be a temporary crutch to a person's obligation to earn a living by being actively employed, this presumes the right to have a job. Yet tutors recall numerous stories from their students whose concerns are that the right to a job has been denied to them not just because of poor literacy skills but because they cannot show CES a piece of paper to say they are educated. The actuality of economic based policies and funding criteria for literacy and retraining do not allow people in need to reach satisfactory levels of education for today's job market.

There is endorsement for literacy/numeracy continuing access programs as a government responsibility. Access for adults in the Special Intervention Program is curtailed to 'entry level' only. In this there is an endorsement for ongoing education. Lack of a high ILCM rating is not the only impediment to finding a job; there is also a lack of 'education', changing workplace practices and technology and most of all, the scarcity of jobs.

It is understandable that there is criticism of courses which are seen to be training people for jobs that do not or may never exist. On the North West coast of Tasmania, historically jobs have been in rural industries which have faced many crises and have responded by becoming more mechanised. The majority of the original jobs no longer exist.

It is not only the selective functional training that is being questioned here, but also the concept that is enshrined in the White Paper - that to meet its 'essential' goals the majority of Australians should be in the workforce. Annually, we celebrate 'Eight Hour Day' which encapsulates the social ethic of Australia: eight hours each of work, leisure and rest. This makes employment only one-third of the equation. Some tutors have argued that this aspect is being ignored by current training programs. Not only do people have leisure time, but because of technology and work practices there is an actual decline in the job skills that are required. Jobs that are replacing traditional ones in the rural and manufacturing industries require repetitive and de-skilled textual competencies such as computer operators for supermarkets, offices, packing lines, etc. The need for

literacy in these jobs may decline to the point of making literacy non-functional to some in our society and the perceived benefits of vocational literacy minimal. Maybe the equation has to be balanced and an equal amount of training/education resources should go into preparing people for their leisure time as a counterbalance to mentally and physically unproductive jobs.

BEST PRACTICE

Within Adult Literacy itself there has been a chronological change in emphasis on what 'Best Practice' means. The 1970s saw 'second chance' education, the 80s brought in 'life-long learning', to be followed in the 90s by 'vocational' outcomes. What the survey of tutors made clear is that, regardless of prevailing ideologies, in Adult Literacy or through government strategies, 'Best Practice' cannot be measured in mass outcomes that match a specific socio-cultural, political or economic result, as each of these could predispose a disposition to gain control over individuals. Empowerment, through education, was not to fulfil any ideology but to allow choice.

It is by no means contradictory to the tutors' role, that when students advise that they have to give up their literacy studies because they have found employment, there is all-round celebration, as illiteracy is only one of the fetters that prevent them from getting a job. What tutors do find contradictory is that literacy is seen as a panacea for unemployment. All the tutors surveyed had a commitment to the view that education aims at enhancing people's capacity to act. To become competent and comfortable with one's own language is seen as path to personal empowerment and there is celebration when students can negotiate their own learning.

Though Brown (1992) uses a well-worn cliche, it does encapsulate what tutors see as that transition from functional training to education: "Education is a double edged sword and a sight of struggle. It holds the potential to transform power relations and it is this type of political challenge that constitutes reform for radical educators".

The phrase "what is in the best interests of the students" arose many times during the survey. In this context the voices of the economic/political world do not take precedence. Many of the practitioners felt that their priorities should be towards their students' perceived needs. Directives from the CES, in many instances, imposed an abstract interpretation on what reading and writing English mean and how they are to be interpreted in order to identify only skills or the 'major barriers' that pertain to the workforce.

Whether it is because of historical conditioning or the gambit of 'Best Practice', within ALBE, tutors considered that the 'best interests' of the students came before any bureaucratic directive. Adult literacy pedagogy in the ALLP cites perceived outcomes, using the unemployed as its object to achieve them. This pedagogy has tended to become focused on the student rather than on the learning process itself as reflected in Adult Literacy. In ALBE, the demand for literacy to serve the workplace and not the student goes against 'best practice'.

This only widens the dilemma for tutors who are contracted to fulfil the set agen-

da. Does this mean that tutors are obligated to subdue their holistic approach to education and comply with the 'enchanted workplace' vision as projected by Government/economic policy?

Contrary to this, the National Framework for Professional Development (TSNDC, 1994) states that, "The discipline of ALBE was seen to have become far more professional, as all teachers now had an opportunity to develop to a consistent standard, to develop 'best practice' in teaching methods based on a common theoretical foundation..." (p. 19).

Perhaps what has always been mooted as 'Best Practice' within ALBE has to be changed if the Government's economic strategies are to hold sway in the climate of professionalism of ALBE tutors: Or have tutors been put in an untenable position?

Brown (1992) sees that the Adult Literacy tutors' role is in danger of being changed to accommodate a rationale of efficiency and control whereby the "...educators are the new operatives being deskilled by the design of technology". The specific vocational literacy programs, as directed by CES through the Special Intervention Program, will present no problems to be engaged with or situations to be investigated. Compliance would bring no questions.

THE CONFLICT

Negotiation of education for one's own ends is in conflict with education being the means towards ideologically directed economic/political ends. For ALBE students to be in control of their own lives they must become familiar with society's rules, and there can be no equality of opportunity until they can. Education is used as a filter to identify future holders of power. Vocational /functional literacy can be seen, in this context, as a method of effectively gagging a section of society. By depriving ALBE students of the opportunity of a broad-based education, tutors feel they are depriving them of all those resources that the ruling elites of society find so important.

When analysing the recent enthusiasm for vocational/functional literacy theories, Luke's (1992) sober reminder is to look at the "...political forces vying to shape literacy, literacy workers and citizens into the next century". Lankshear (1994b) asks us to concentrate on addressing the "...complex literacy needs of an intricate society in a period of rapid and far reaching change: change which...threatens as never before the tenability of adult life for those who lack command of text" (p. 123).

As Wickert (1988) views it, it is not only bureaucratic strategies that can inhibit acquisition of education. She points the finger at tutors who, however unwittingly, act as gatekeepers "to maintain the status quo". If literacy students only learn how to read the job board at CES, how will they ever question the fact that it may be the drafting of the form that causes them (and most of us) concern - or that the job advertised on the noticeboard reading "should be proficient at windows", is not talking about cleaning glass panes. If the students are not exposed to the language of education as opposed to vocational training, they will remain subject to a ruling class and so will inevitably be deprived of familiarity with and experience of the necessary language, or even the rules

of the game. Gatekeepers are seen as being just as instrumental in gagging people as Luke and Lankshear sees government policy being.

Purpose is tied up with goals. The Special Intervention Program's goals are defined in ways which tend to be interpreted in terms of facts. (X amount of money will relate to X number off the unemployment statistics = X productivity) In this the Government is acting as an agent of economic power. It is when we get to the area of tutor and student goals that the journey is not so clearly marked. Empirical cause and effect criteria can be viewed as not only impinging on our language but on our freedom to know and to use language and choose our own advocacy.

The Special Intervention Program has found the students a purpose for 'doing' literacy - to "read the job advertisement board at CES" with its inbuilt connotations - as opposed to the proposition that people have a choice, or feel that they have a need for vocational orientated literacy. Many adult students express their literacy needs as being able to spell 'difficult' words. In many cases, this bailiwick is effectively narrowing competencies in English, as is vocational literacy. If students cannot put those 'difficult' words into context, and if such spelling techniques are performed in isolation from the rest of their lives, the students are still in a deficit position. Both situations can cause stress and anxiety.

A number of tutors observed that, in their practice, it was not meeting their students' needs to teach context-specific literacy in the hope that it was transferable into a wider range of everyday needs and contexts. A broad educational base and exposure allows a cueing technique to be developed. Finding their way around the world of everyday activities, such as reading the newspaper or interesting magazines, is part of a world the student may be familiar with and relate to. To come face to face with, and to be able to comprehend, context-specific, obvious or subliminal requirements of Government forms, job advertisements, regulatory procedures, etc., can, for those without familiarity with the complexities of the written text, place them in a foreign environment. To find our way around, cueing techniques are needed. The broader our familiarity is with any foreign city, the quicker we will be able to venture further.

Power Differential

Power play is another crucial area that causes tutors concern - particularly within their role and in their assumptions of what they think is best for their students. There is a danger of Adult Literacy tutors being devotees to a cause, and this zealousness can have a negative effect. Literacy practice needs to do more than simply justify itself by defending its good intention. Adult Literacy practitioners can be authoritarian figures and can be accused of doing exactly what they object to in the bureaucratic stance if they limit their practice to teaching their students to read the 'Job Board', and shut the gate on education. If literacy is viewed by tutors/government as a remedial strategy, designed by 'missionaries' to fulfil their particular vision, it could be interpreted as a form of conditioning and control. These beliefs may limit perceptions of students' real needs.

Freirean (1987) pedagogy is predicated on an understanding that it is the needs

expressed by the students themselves which should form the basis of any curriculum. Yet Gee (1990) challenges such theoretical formulations and argues that our social conditioning gives us the questions we ask. When we set up theories and political agendas for literacy we can only understand them from our own social linguistic perspective. Gee asks practitioners to submerge the intangible, metaphysical and aesthetically pleasing theories of how they approach the teaching of literacy and find an "empirical base for a consistent theory of literacy...the focus of literacy studies cannot be, and ought not to be, on language, or even literacy itself as traditionally construed. Rather, the focus must be on social practices" (p. 137). This is asking the tutors to be the students first, by asking the right questions of their students and knowing the sub-text of their questions. To be efficient teachers, do tutors have to be 'bilingual'? To become so, by Gee's definition, we would have to be familiar with each student's social conditioning.

This postmodern textual analysis and its accompanying theory is, in the considered practice of many tutors, problematic, because they argue that it changes nothing for disenfranchised groups and does little to address unjust power/knowledge relations. The paradox is that Adult Literacy students wish to enter the world of the tutors. Tutors are seen by students as having the knowledge which, once gained, provides not only access to jobs, but release from bureaucratic control. Issues to do with power can be ignored by relatively powerful people. The power differential between tutors and their SIP students will remain if only a sub-text is looked at, be it vocational literacy or literacy within a particular social context. Power differentials cannot be addressed by the powerless. Luke (1992) notes that "disenfranchisement and marginality are not a matter of choice" (p. 1). He sees that in the practice of adult literacy the acquisition of literacy can be self-contradictory. There is the potential for literacy to be both a means for "...shifting deeply embedded practices of control and disenfranchisement, and the possibility of perpetuating these practices through the very literacy policies and strategies which propose equity and justice" (p. 2).

The real value that is being portrayed is that tutors have the language of bureaucracy. Tutors cooperating and learning the students' sub-text aborts the aim of empowering the students to take their places in the society that the White Paper envisions they are to be trained for. To be conversant with the students' sub-text might help in the understanding of particular social contexts, but would only enhance the tutors' education and detract from the purpose of fulfilling the students needs/wants. An underlying assumption is: are the tutors failures if they do not turn out rubber stamps of themselves?

Informed by Research

The independent evaluation study on the Impact of a National Framework for Professional Development (NSDC, 1994) states an aim and objective as: "....to ensure that current practice is informed by research and theoretical implications..." (p. 3). With a focus on theoretical implications as well as research it will no doubt generate a lot more questions. If Adult Literacy is seen to be empowering individuals through education, then practitioners must be able to describe their practice and support their theories with

on-going research that questions not only new theories but well entrenched practices.

As Cope and Kalantzis (1993, p. 76) argue, "...literate discourses have peculiar power to generate certain kinds of analysis and critique. They have the power to produce synthesis out of complexity". The tutors surveyed did question their role and their possible subjection to overriding ideologies.

OVERVIEW OF STUDENTS' PERSPECTIVE

Economic gain also played a part in students' attending SIP literacy courses. The training allowance was seen as a welcome adjunct to their fortnightly social security cheque.

As SIP is a recent manifestation of Government policy, adult literacy tutors have to learn new strategies to deal with reluctant, resentful learners: sometimes a feature of those drafted by CES. They see students being coerced into literacy programs. Many students feel that they have no choice other than to front up to adult literacy classes.

Tutors acknowledge that is easy to verbalise about the low self-esteem, embarrassment, lack of motivation, as well as the antagonism that many of the students feel about being directed by the CES to attend literacy classes. To break down those formidable barriers is seen by the tutors as their initial task. Methods of and techniques for making adult students comfortable and valuing their eclectic experiences are indispensable, and are created and re-created to adjust to individual students. Tutors sometimes find it necessary to spend a great proportion of the alloted SIP-funded time to get a verbal response from reluctant students.

One young man in the student group interviewed was at war with anything that looked like a government institution. As a forestry worker, he felt that the government had, through legislation or non-intervention, deprived him of a livelihood. He was extremely hesitant to put his trust in anyone and was quite sure that his required attendance at ALBE was a punishment because he could not find a job.

'Now I'd like you to write something for next time we meet'

'I haven't got anything to write about'

'What about football?

'That's a mugs' game'

'Did you do anything interesting over the weekend?'

'Nope'

'What sport do you like watching on TV?'

'Nothing'

'What sort of car do you have?'

'Car talk is for rev-heads'

'What do you call people who ride motor bikes, then?'

'Oh, they're OK'

'Do you have a bike?'

'Of course!'

'What sort?'

'A V.F. Honda. I tinker round a bit with them...'

Half an hour after the finish time, G was continuing to educate his tutor on the finer points of the art of motor-bike appreciation. But the step from talking to writing seemed to be fraught with insurmountable obstacles. Each session a new and imaginatively charged excuse for not writing was proffered. G moved into a group, and in each session members would read their own piece of writing. He became comfortable with the format of discussing their interests and posing questions that would prompt the next piece of writing. But G's turn to read always passed with, "next week". During the all important 'smoko', G was telling the group about the rally that was coming up. Someone suggested that he ought to jot down his thoughts about the rally as it would make a good 'read' for next week.

The group's response to G's first piece of writing unleashed a flow that had all enthralled for the next few weeks. The eventual collection of sheets handed to an editor for possible publishing came back marked "Must have". The process of going from non-writer to author in G's case could become a manual on 'How to write a book without really trying'.

In this instance, the tutor, no doubt, was technically in breach of the SIP guidelines as it would be very difficult to justify a vocational/job orientated structure. The interview may be theoretically flawed, but student G's writing gave him the confidence and the ability to start negotiating his own learning.

All but three out of twenty-eight students expressed that initially they had negative feelings about coming to Adult Literacy. Adult Literacy had connotations of school about it and reminded them of past failures and, in the main, unpleasant experiences. This was exacerbated by the fact that if they had to go back to school they would still be labelled as 'duds'. If they could not achieve when at school, what hope would they have as adults? A number felt that their security was threatened if they did not turn up for literacy classes. They perceived that attendance at Adult Literacy positioned them in an ongoing deficit position in the eyes of the Government and community. The negative reaction to their initial encounter with the SIP program at ALBE can be summed up with one student's comments: "One man said to me, 'If I couldn't learn while I was at school why should his taxes go towards training me?'"

Through the survey, and in subsequent dialogue with the students, it became obvious that the majority were acutely aware of why the CES had directed them to Adult Literacy. Many were antagonistic towards the bureaucracy but even more so to their unemployed status. There has been a general student consensus that their limited literacy skill compounded many problems but caused few. They saw that literacy problems in themselves are not the major cause of unemployment - the lack of jobs is.

The Government SIP scheme places value on literacy to meet implied aims. The students place value on being literate to meet their very real aims. It is not the bureaucratic aim that literacy is necessary that worries the students: It is the 'up front face' and perceived stigma attached to the terminology 'Adult Literacy' that concerns them. As Freire (1976) pointed out, "Adult literacy still carries a stigma - to many it is still seen as some kind of mysterious 'poisonweed' or 'contagious disease' that only we experts

know how to eradicate".

For students, 'doing literacy' has a degrading social significance. As a counter-balance to the negative reaction to them and the community's reaction to 'Adult Literacy' as a synonym of being a 'dud', for many an enthusiastic search to find out what they missed has become obvious in the SIP tutorial groups.

Government and student aims are similar. Basically the students wish to conform and fit into Government economic strategies and become employed. As Paulo Freire put it: "...the unemployed are the unwilling pioneers of a new way of coping with life". There is a duality in this, as the students are not unwilling to enhance their employment prospects but they are unwilling to be labelled 'Adult Literacy' students, with its implied stigma, and many feel that a choice has been denied them.

As much as students voice their grievances about their individual dealings with the CES and Government directives to attend literacy classes, their enthusiasm and motivations exhibited at Adult Literacy centres in Burnie, Ulverstone and Devonport show that the CES's investment is well placed for the students' interests as an intital step to find their way around the world that literacy opens up. SIP students have a language that they use to successfully negotiate and regulate their personal environment. But this literacy discourse can also exclude them from the discourse of social and educational mobility which portends access to jobs and personal empowerment, allowing and giving students options that the lack of education denies them.

Identifying and Assessing Outcomes

Tutors find it hard to encapsulate their students' progress to suit bureaucratic formulae: Yes, he/she can now read the job advertisement board, but they also realise those intangible requirements of raising low self-esteem, or feeling comfortable about venturing into the unknown are still a progressive educational step away, with no scale to measure them.

This still leaves the student with the dilemma that, if by attending Adult Literacy his/her ILCM has been raised, is the student now considered employable? Does an ILCM scale advance equate to being employable? The bureaucracy, by advocating assessment scales for literacy skills, places a workplace value on it. Also, the SIP program assumes that the ILCM scale improvements can be met in 40 to 60 hours.

McCormach (1991) points out "Adults with literacy problems do not need something called 'literacy'. They need an education". The SIP program envisages a production line, and the only focus is on becoming literate in an employable sense. This utilitarian focus on functional literacy which would debase reading and writing to a merely adequate efficiency is abhorent to the 'good practice' and the ideology of Adult Literacy. As Falk (1994) discussed, "The issues of employment and adult learners is only one aspect of the problem. Further education and training is the other". Government policy recognises literacy as a factor influencing economic recovery and development but has become context-specific.

The drive towards the identification and assessing of standardised outcomes and

competencies is another negative factor. We may lose sight of the fact that adults already have a great richness and variety of language and literacy in their daily lives and wish to be subjected to a wide socio-cultural context, in which uses of literacy are situated. Students tend to measure themselves against those whom they assume have 'education' and so doubt their own worth.

> If we persist in relying upon attainment criteria for language and literacy acquisition that exemplify only the set of experiences of one group in our society, we are liable not only to miss a great deal but also displace other equally vital uses of language and literacy as somehow inferior, inappropriate or even invisible (Breen, 1993).

Basic education is not a short-term need. It is not a quick-fix, mopping-up operation that students want. The setting of targets in the Special Intervention Program caters to a bureaucratic perceived view of student deficiencies and does not address a student-centred program. As Evetts and Flanagan (1991) viewed it, "literacy skills can help people take more control of their lives, but literacy can also contribute to people being controlled and silenced". By using quick-fix SIP literacy programs without follow up training or education, it can be argued that SIP is directing and disempowering individuals, that is, "You have had 40 hours literacy and now you still cannot get a job. No wonder the students categorise themselves as 'duds'.

"A crucial lesson... seems then to be the need to avoid viewing or designing literacy as an overwhelming technical solution to problems that are only partly technical. (UNESCO, 1976, p. 122) As Luke (1992) points out "...you may become just literate enough to get yourself badly in debt, exploited and locked out", which suggests that being vocationally literate rather than becoming independent through education, could reinforce people's sense of powerlessness.

How the students perceive their future

The overall objective of many of the students surveyed at the start of their SIP program was to secure employment. So initially, 'best interests' meant the most expedient route to the job market. By the end of the program this vision had changed. Yes, they still wanted that elusive job, but there was an unsatisfied appetite. They had just started to find their way around a foreign world and wished to become more familiar with it. As one student wrote at the end of his program, "I came to be taught, I was taught and now I'm just starting to learn".

Cope and Kalantizis (1993) argue that,

> ...the more genres people have access to, both spoken and written, the broader the range of social things they will be able to know and do. Some social realms need the peculiar linguistic technologies available to literate discourses, not only so that people can read and write in those places, but so they can listen and speak and, ultimately, think in and through each realm.

Tying students into a one-genre stream of literacy is not conducive to anything more than situational apprenticeship learning. Wider discourses allow social access,

whereby generalisations and abstractions about socio-political and economic relationships, which pattern our institutions and therefore our lives, can be questioned.

W. Smith (1990), tells of her students' delight when she introduced them to the literacy heritage, so giving them "gifts from gold". She was arguing that, to know, you need to understand firstly your heritage, which adds dignity and integrity to curriculum negotiation. Just introducing a narrow, functional understanding of literacy which does not enhance students' capacity to think, create and question negates their 'knowing' their way around their language and so stymies the possibilities of an entry into a world from which they have so long felt excluded. If students have the opportunity to understand the sub-text (Gee 1990) of education this will also empower them to question and challenge society. Even by definition, this surely allows them to be bilingual in discourses.

One student likened tutors to guards, using the analogy of an army supply barracks. "All the goods are stored inside - you only let us have what you think was good for us". What a telling comment - suggesting that only what they see as the 'educated' have power and control, and that without an education they are effectively gagged; a sobering thought for all tutors.

Freire (1987) states: "...you cannot change the world if you do not understand it". To understand it one must become familiar with the prevailing mainstream education to know the language of the controllers before one can venture beyond.

The Students' Voice

At the end of their program the students were asked if their aims had changed. The majority said, "Yes".

"Now I tell everyone, I'm going to school."

"I still don't know about Shakespeare and my girl at school said I should."

"I keep saying to myself - I can do something."

"Where do I go from here?"

'Why wasn't school like this place?'

Barer-Stein (1989) speaks of learning as a "process of experiencing the unfamiliar". The majority of SIP students ask of their tutors that they show them the way to have confidence to be autonomous individuals who can venture into the unfamiliar themselves.

CONCLUSIONS

The Special Intervention Program implemented by the CES is the result of the White Paper. It was to address what is seen as the literacy needs of adult Australians. It would fund into being the Government's vision of the needs of an economically viable Australian economy projected into the 21st century. To achieve this vision it was assumed that Australians needed to be specifically vocationally literate for Australia to compete in a global economy - vocational literacy equated to economic improvement.

Interviews with the SIP tutors gave many insights into their concerns: Many questioned their own practices, their particular biases, teaching theories and political visions. One overall concern was evident. The tutors felt that they were advocates for their stu-

dents' needs and wants. They questioned the CES's interpretation of the White Paper and voiced concern at the political theory that implied that improved vocational literacy for the unemployed, who lacked basic education, will automatically create greater productivity and thus dramatically reduce unemployment.

ALBE tutors who are contracted to fulfil the Special Intervention Program felt compromised by the aspect of using students to achieve a government agenda. Their 'good practice', they felt, was being debased; as the ethos of ALBE was very much centred on students being ends in themselves. The utilitarian philosophy of using people for government aims created a dilemma that they felt impinged on their professionalism. Individual choice was being denied to people who lacked the enpowerment that education can give.

Initially, the majority of SIP students felt that they were victims of discrimination and oppression, and they suffered the indignity of being coerced into attending Adult Literacy classes. They were unemployed and now had the label of 'literacy student' added to other causes of their low self-esteem. At the end of their courses they still wanted that elusive job, but they also wanted to become familiar with the things that they felt they had missed out on. ALBE tutorials allowed them their voice and pointed out the signposts so that they could start their own journey into the unknown.

There is a dilemma, and a trifocal view. The White Paper and the CES's directives state the means of executing a political vision, in which the unemployed are used for political ends. The tutors, historically conditioned by the ethos of ALBE, consider that their professionalism dictates that their priorities be directed to their students wants. The SIP students do not see literacy as the solution to their fundamental problem; they want a job.

One unifying factor is that literacy does make a difference, but an education liberates and gives people the choice to be their own ends.

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WHAT ARE THE CRITICAL COMPONENTS OF A WORKPLACE LITERACY PROGRAM IN A COMMUNITY AND HEALTH SETTING?

Patsy Hall

INTRODUCTION

This paper describes a workplace literacy program in its embryonic stages. The workplace program was initiated by the researcher, a worksite staff development officer, who wished to develop a program that aimed to address the inequities within the organisation where 'operational' workers are disempowered by the presence of multiple layers of 'professional' workers. The overall aim of the researcher was to develop and implement an industry specific workplace literacy program which

- is integrated into the mainstream training program,
- is designed and evaluated with input and control from **all** levels of workers,
- uses workplace text as curricula material, and
- provides task-related learning within a broader social context.

The research paper aims to describe the organisation, its historical base and culture, as well as previous workplace training, including workplace literacy projects. An examination of the literature is included, in relation to literacy, workplace literacy, literacy skills audits and discourse and power in the worksite. The final phase of the paper describes a literacy skills audit conducted in two distinct units, within a service area, and the results, as well as detailing the role of a worksite literacy consultative committee. Anecdotal information used throughout the paper has been collected from conversations held by the researcher and employees in the worksite described.

The project justifies the need for worksite literacy training that is embedded in the mainstream staff development program accompanied by an organisational move to the adoption of Plain English practices.

The workplace

This project was based in a public hospital facility within a community and health service which employs approximately three thousand staff. The overall project aimed to reflect the organisation's endeavour to redress the traditional social inequities in the support and empowerment of its multilevel and multifaceted workforce. This organisation, like many traditional hospital settings, stems from Tayloristic management practices which rely on "...layers of highly skilled, well-paid administrators to manage large numbers of employees with only the basic skills necessary for front-line work" (Gowen, 1992, 9).

The researcher believed the inequities within the organisation were reflected in the mainstream staff development program as well as in previous workplace literacy programs which had been unsustainable and not workplace specific.

Previous workplace literacy programs

Previous workplace literacy programs were of two different types. In the first type, one-to-one consultancies were offered to employees who were identified by managers or themselves as needing assistance in the area of literacy. The program was accessed by referral only and was not advertised throughout the region. The second type of program offered, on a one-off basis, was provided by an outside consultancy company. This program was limited to a small group (ten participants) and was conducted over a short period of time. The program was not occupational specific and provided no formalised 'back-up' in the worksite or ongoing opportunities for development. Recruitment for this program was based in the hospital setting and targeted at all staff but, due to the constraints of the program, participation was limited to one person from each of the selected worksites. Participants with the greatest needs were chosen by their managers, from those who showed an interest in the program, leaving the facilitator with a diverse group with a wide range of training needs. As the program was provided to the organisation at a cost it was also not a viable choice for meeting ongoing training requirements.

The organisation

The three thousand employees of the organisation are dispersed throughout a large geographic area. Sixteen hundred of these employees are based in a traditional hospital setting. It is within this setting that the majority of the research is based. The setting was chosen firstly because of its proximity to the researcher who is employed as a Staff Development Officer within the region; secondly, because it is the largest setting for operational workers; and finally, prior to regionalisation, it was an entity of its own and therefore has a strong history and value base.

The question of what title to use for the workers discussed in this research demonstrates the lack of recognition shown for the contribution these workers make to the organisation. Titles commonly used for these workers include ancillary staff, support workers, blue collar workers and operational staff. The *Webster's Dictionary* (1992) defines each of these titles as follows:

Ancillary: *1. Subordinate. 2. Auxiliary, serving to help (p. 54).*

Blue collar: *Of, pertaining to, or designating employees engaged in physical or manual work that requires them to wear rough-textured, dark, special clothing for protection or as a uniform.(p. 149)*

Operational: *1. Pertaining to an operation. 2. Organized or prepared to carry out tasks, especially of a military character. 3. Fit or ready for some specified task. (p. 885)*

Support: *To provide (a person, institution etc.) with maintenance; provide for. (p. 1261)*

The Tasmanian Industrial Commission, March 1995, *Community and Health Services (Public Sector) Award* classifies Operational workers as, "*A position which requires the performance of operational work (as defined)*". Further on, the Award describes this as "*working within a functional area/s (as defined)*". *Routine, manual tasks*, are the terms used to describe operational work and operational workers as those

who " *provide assistance to technical and professional staff, operate equipment, machinery and vehicles, and trade work*" . *A* Functional Area refers to *"a work unit providing a distinct service, e.g., cleaning, catering, kitchen, attendants, hospital aides, stores, workshops, laundry, etc.".* After reviewing this literature the researcher has decided to adopt the term 'operational', and to describe it further as those employees, without tertiary qualifications, who are working in the following work units in the positions specified:

- Linen services - driver, laundry assistant, seamstress, cleaner, handyman, supervisor
- Hotel services - cleaner, attendant, security worker, waste handler, supervisor
- Food services - food assistant, cafe worker, trolley person, cashier, stores/purchasing person, driver, vegetable preparer, supervisor, food monitor, clerical staff
- Transport services - driver, clerical assistant, supervisor, parking attendant
- Supply department - stores clerk, inventory/stores person, purchasing officer
- Building and Engineering services- tradesperson, trades-assistant, supervisor, reception\clerical assistant
- some administration and clerical staff - switchboard operator, receptionist, mail sorter, delivery person

The organisation has been in existence since 1863 and has developed a strong 'corporate climate'. A climate, according to Bean (1993, 22), that "exists where the organisation has been in existence for some time and the members of that organisation have shared a common experience leading to the development of a unique but intangible character". This corporate climate is described (Kilman, 1985, 22) as "an invisible quality - a certain style, a character, a way of doing things..." that has developed over many years and is a product of a number of factors both known and perhaps unknown by the researcher and employees.

Some of these factors include the traditional roles of professional and non-professional worker within the organisational structure, the history of workplace training, the perceived value/contribution of non-professional employees compared to professional, and an 'academic arrogance' of some 'professional' workers. This culture is typical of that described by others and perhaps is not a unique finding. Gowen (1991, 448) described similar findings in a workplace literacy program for women in a southern US black hospital:

> ...while we have put slavery and some of its overt brutalities behind us, we still tend to measure and categorize the other as deficient, as somehow less than well developed. This, in turn, enables the dominant culture to keep the other in her place - doing the cooking, cleaning and washing for institutions that could not survive without her constant support.

This workplace culture is partly attributable to the history of training provided by Staff Development staff within the organisation. The structure of Staff Development Services as they exist at the time of this research was a recent initiative. Prior to this change, staff development was delivered within the organisation by three distinct

groups. Staff development for hospital based nursing staff was delivered by Registered Nurses originally attached to the hospital based School of Nursing. Community health workers staff development was delivered by Community Staff Development Services - predominantly staffed by Registered Nurses. The final and most recent service, staff development for general staff, that is, non-nursing staff, was delivered by a sole Staff Development Officer attached to the Human Resources Department.

The change in training services for operational staff is of most relevance to this discussion. Factors such as the ratio of staff development officers to staff, the training priorities determined by the Human Resource Department and the culture of the workplace at the time are some of the factors which influenced the type of training delivered to general service areas. It is worth noting that these factors were not within the control of the Staff Development Officer despite efforts made by him to alter them. Virgona, (1994, 3) describes a similar historical base for workplace training for general staff and its effect of the value of training within a workplace: "The energies of this training resource was mostly directed at management levels in the belief that shop floor tasks were either catered for through the apprenticeship system, or were mechanistic and minimal and therefore needed no significant training", a belief still widely held and sometimes voiced within the organisation described.

Professional staff are often heard referring to operational staff as "just the cleaner", the "wardsmaid", "the little man" or a term recently heard, "cannon fodder". Staff working in operational areas frequently complain about the way they are treated within the organisation. Professional staff often expect them to "drop everything" to meet their needs and appear to have no perception of how they work or even what their work entails. Correct procedures for requesting work\services are abandoned, with staff demanding services without considering normal prioritisation of workloads.

These attitudes seem to have worsened with the change from unit driven to centrally driven control of some operational work groups. Staff were once 'attached' to a unit or department and were seen by staff as a part of the team. They are now rotated throughout the organisation at the discretion of their manager. This change, although beneficial to workers in relation to multiskilling, etc., also seems to have increased the distance between operational and professional staff and reduced their understanding of work practices. Central control also appears to have stifled creativity, decision making, initiative and time management of individual workers, as well as reduced their sense of pride in and ownership of the unit to which they were attached.

A recent comment heard in relation to performance review of operational workers, "They only need to clean - and there's clean and not clean - what else is there?", suggests that their role is limited to the performance of skills only, and raises the question of their need for further training or development. This unfortunately exemplifies the attitude of some 'professional' staff. Is it their belief, as is suggested by Virgona (1994, 5) in describing similar organisations, "that workers did not need to think and were employed primarily to reliably perform repetitive tasks consistently" and, that these workers "are a product of an authoritarian culture and most have not been tearing at the

barricades, but have acquiesced to structures that served to silence them" (1994, 16)?

Compared to professional staff, operational workers are more frequently expected to attend training in their own time and see training programs within the organisation as something provided for other workers. The introduction of Quality Improvement, Award Restructuring, the Training Reform Agenda, Workplace Reform and Multiskilling have also influenced the current organisational climate and certainly training within the organisation.

The changing workplace in Australia

The National Training Reform Agenda, through tripartite agreement, has as a central strategy the development of a workforce in Australia that is productive, adaptable and highly skilled (DEET, 1993, 9). The Training Reform Agenda has meant the restructure of Award systems within Australian industries.

Award Restructuring is the process of changing awards which set out job classifications and working conditions. Awards are being restructured to enable greater flexibility and to improve efficiencies in the workplace to account for the introduction of new technology and production methods, and to provide access to more varied, fulfilling and better paid jobs, as well as career paths, for workers without trade or professional qualifications (Prince, 1992 (b), 20; Joyce, 1992, 3). This will bring those employees previously seen as 'unskilled' into the training picture (Prince, 1992 (a), 64). Community and Health Services are currently undergoing award restructuring and dramatic changes to their awards structure, with a reduction of forty-seven awards down to four.

Award Restructuring, through workplace reform, has had a major impact on training within the workplace. As stated by Mawer (1992, 14),

> At the local workplace level, the structural changes to awards have also been accompanied by the introduction of new technology and Quality systems which have dramatically increased the oral and written communication demands placed on all workers....Under industry restructuring, these workers' career progression and wage increases have become directly linked to their ability to demonstrate achieved competencies through training initiatives.

Competency standards are being developed for industries across Australia and are a recent development for those industries represented in the workplace described in this paper. The development of competencies has included the identification of those literacy skills required for competent performance. The *National Textile, Clothing, Footwear and Allied Industries Competency Standards (Draft, May 1995) - Laundries Sector* describes the underlying knowledge and skills necessary for the successful demonstration of competencies concerned as, "The ability to communicate in the workplace sufficiently to: interpret records, work orders and operating instructions; complete time sheets and reports; give and receive basic instructors effectively; be aware of and understand safety and other relevant regulations and instructions" (p. viii).

Multiskilling - the "training in a number of formerly discrete skills which enables

an employee to perform a wider range of tasks" (Joyce, 1992, 3) comes as part of the package to change work practices across industries. This also requires employees to undertake training on a regular basis, and movement horizontally or vertically in the workplace will be based on accredited training. (Joyce, 1992, 14).

The federal government's Training Guarantee Levy has also encouraged employers to invest more in the development of all employees. In the past, expenditure on training has generally been directed to middle management, apprentices and 'skilled' workers (Prince, 1992, 64).

Quality Improvement, Occupational Health and Safety programs and the preparation for, and maintenance of, Accreditation has meant that operational workers are expected to attend compulsory training sessions on Manual Handling, Fire Safety, and Evacuation Procedures, as well as participate in quality assurance programs/circles, waste management committees and so on. "These changes have meant that competence in language, literacy and numeracy has become integral to the success of a flexible competitive, productive and collaborative workplace" (Mawer, 1994, 3).

> The current climate of change in the workplace may give workers new opportunities to gain access to training and to new jobs.... For these to have any real impact training *must* include literacy, numeracy and language training. This is particularly the case for workers who have had little or no access to formal training, in or out of the workplace, and who are traditionally locked into low paid jobs that are regarded as unskilled (Durie, 1991, 75).

Virgona (1994, 4) describes these changes to workplace training delivery, in particular with the implementation of Quality Improvement. For the first time, formal training programs were set up for shop floor workers, which she describes as a "...dismal failure.." which "... left shop floor workers bewildered and bemused and usually no more the wiser...".

The introduction of Quality Improvement, Award Restructuring, the Training Reform agenda, Workplace Reform and Multiskilling have left a similar mark on the researched organisation. Operational staff still utilise Staff Development programs less than other categories of workers and, it is the belief of the researcher, often leave programs none the wiser.

Most operational workers see participation in quality assurance committees as a role for the supervisor or manager, not something which relates to 'real' work. Staff participating in Train the Trainer programs, offered as part of the mainstream Staff Development program, have represented all layers of the organisation. Feedback from staff participating in this program, particularly those from operational areas, suggest that a high percentage of the training was difficult to understand and not relevant to their role as a worksite trainer. This is the reverse of the response of some professional staff participating in the same program, who suggest that the program was "pitched too low".

If it is the organisation's aim to provide training to all levels of staff on a regional basis, the conflicting /issues, raised for the researcher working within this organisa-

tion, were as follows:

- *Do I offer two levels of training: one for professional and one for operational level staff? Or does this continue to perpetuate the inequities and division between levels of workers?*
- *Do I offer pre-course training or a 'bridging' course to operational level staff as a 'stepping stone' to the mainstream program?*
- *Do I offer training at the middle of both levels and run the risk of meeting no-one's needs?*
- *Do I offer a workplace literacy program? And if so, to whom? Or do I offer a Plain English program to 'professional' staff?*
- *Whose objectives am I meeting in doing this: The Training Reform Agenda's? The 'disempowered' workers '? The Staff Development Officers?*

and,

- *Is there really a literacy gap in the organisation?*

LITERATURE REVIEW

In order to answer some of the questions raised by the research it became necessary for the researcher to review some of the literature relating to literacy, workplace literacy, workplace discourse and power, workplace literacy programs - types and best practice, and literacy task analysis.

Literacy/Workplace literacy

In 1978 UNESCO defined a person as literate "...when they have acquired the essential knowledge and skill which enables them to engage in all those activities in which literacy is required for effective functioning in their group and community, and whose attainments in reading, writing and arithmetic make it possible for them to continue to use these skills towards their own and the community's development." (UNESCO 1990, 3)

To be functional within their own group a person needs to have attained a sufficient level of literacy (Derewianka, 1990, 4): This level will be different for every group or context. It then becomes necessary to ask not whether a person is literate or not, but whether the person is *sufficiently* literate (Newman & Beverstock, 1990, 49). A survey conducted on attitudes of employers defined literacy as "... the integration of mathematical and linguistic skills necessary for filling out a job application, filing, conducting routine correspondence, monitoring inventories, and expressing oneself clearly in writing." (Research for Better Schools, Inc., 1978). If we were to adopt such a definition it would soon render most of those operational workers in the research group as 'illiterate'. The skills outlined in the above definition are not skills used in a lot of positions within workplaces. The ability of workers to gain and retain these skills does not necessarily support the idea of attaining skills to enable workers to function in their work community.

Literacy is a relative thing and is different for different people, at different times, and within different situations (Street, 1992, 5). The literacy we use at work with one group of clients may well be very different from that which we use with another group.

This will differ again from the literacies we use with our children, partners and friends. The literacy a person develops is that which is required within the social group to which that person belongs: it is that social group which 'apprentices' us in the literacy required.

Discourse and power

Literacy is a social practice, or "a discourse with a capital 'd' as described by Gee (1992, 7):

> ... socially and historically distinctive ways of saying, doing, being, valuing and believing (and sometimes writing and reading) in the 'right' places at the 'right' times with the 'right' people and with the 'right' props so as to mark out social identities or play specific social roles.

Literacy, then, becomes a characteristic of a social group which is "...embedded in the larger framework of social relationships and social institutions" (Gee, 1990:103). The literacy or Discourse we belong to serves the purpose of 'situating' us into a "social field of status" (Gee, 1990, 104). Each social group or Discourse will have its own language. Fairclough (1989, 64) describes the discourses within institutions referring to specialist vocabularies, or jargon which serves to exclude outsiders. Discourse, he states (1989, 74), "... is part of social practice and contributes to the reproduction of social structures".

The Discourse within the researched organisation are embedded within the layers of workers. The Discourse of Food Service workers is very different from the Discourse of drivers in Transport, or nurses, or medical staff, or staff development officers, or the Chief Executive Officer.

What happens when people step out of the Discourse they are socialised into? Gee (1992, 11) suggests that,

> If your mental network of associations (which is never identical to anyone else's) gets too much 'out of line', or your folk theory deviates too far from that of others, your practice will render you marginal to the Discourse and the Discourse will 'discipline' you and put you back in line, or you will cease to be a ...[food assistant, driver, laundry worker, etc.]

The people who step out of their Discourse and start to adopt behaviours or language similar to those of another Discourse are disciplined. A cleaner who developed a love for reading and started to use the hospital library (traditionally the domain of the medical staff) described negative comments from her peers in the cleaning Discourse. The manager of Cleaning Services, when describing a staff development officer who suggested cleaners refer to some of the texts in the library, said, "cleaners do not use the library - they don't even like to clean in there !". Literacy becomes an access issue: "access to discourse and membership, and interpretive community" (Wickert, 1993, 63).

If I am an outsider to a community then my literacy will position me as one. This positioning occurs both in the larger community as well as those communities or levels within the workplace:

> Literacy is highly valued within our society, and a great deal of socially important and prestigious practices take place in 'the written word'. Access to a high level of literacy is a precondition for a variety of socially valued 'goods', including most rewarding and well-paid jobs" (Fairclough, 1989, 63).

The literacies or Discourses used within an organisation serve to position people into a social group, making it very difficult to communicate with those in other groups; they also serve to keep people within those groups. Fairclough, (1989, 58 - 65): states "...the power behind the conventions of a discourse type belong not to the institution itself ... but to the power-holders in the institution". He also states, "The policing of conventions is in the hands of the institutional power holders, at various levels.... Inculcation is the mechanism of power-holders who wish to preserve their power, while communication is the mechanism of emancipation and the struggle against domination".

Workplace communication

Workplace communications occur within a limited number of contexts:

- within own teams,
- within other teams,
- outside the immediate work context,

or within the job specific context, enterprise context or broad industry and training context (Baylis & Thomas, 1994, 21). Each context is influenced by register variables of field, tenor and mode, as described by Derewianka (1990, 20 - 21):

Field - the familiarity in each context influences the level of difficulty of communication. For example, the employees communicating within their own team share knowledge of the field. They understand the vocabulary used in exchanges and are very familiar with the typical language functions expressed on a daily basis. A nurse communicating with other nurses will use vocabulary unique to their profession, and often the type of communication will be affected by the type of discourse they are participating in, for example, the discourse of 'hand-over'.

Mode - the language used within a work team is generally close to the action and so is less abstract. When the communication is further removed from the immediate work context, for example, in a quality assurance committee, or where it is written and not spoken, for example, in the hospital bulletin or the organisation's newsletter, the language is likely to be more abstract.

Tenor - three aspects which influence tenor in communication are power or status, affect or feeling, and the amount or frequency of contact between the interactants. This latter aspect is more significant, for example, in interactions with others outside the immediate work group, or in interactions between workers or supervisors. The interaction between food assistants and medical staff is an instance where tenor will greatly influence the communication exchange.

Interviews for a new position within the organisation are an example of a situation where all register variables; field, tenor and mode, are uncommon to the intervie-

wee and thereby exclude him or her. Fairclough (1989, 47-48) describes these situations as "gatekeeping encounters" in which the 'gatekeeper' is someone who belongs to a "societally dominant cultural grouping" and who controls an encounter which determines whether another person gets a job or access to some other valued object. The assumption is made that all workers would be familiar with the interview situation and would be sufficiently at ease to present themselves favourably at interview. The difficulty operational workers experience in applying for positions and 'performing' at interviews is demonstrated by the frequent demand within the organisation for workshops and individual consultancies in these areas. Baylis and Thomas (1994, 21-26) describe three differing workplace contexts: The job specific context, the enterprise context and the broad industry and training context. For each of these contexts the language changes. The job specific context is

> defined by tasks which relate to the job itself. The tasks are unique to a particular job and mark the job off from other jobs....instruction is clear because the concrete familiar context of the job provides the clues to what this instruction means.

In the enterprise context, instruction is "...not so easily understood since the context may not be familiar to the employee and the language itself is more abstract ...". Language in the industry and training context occurs where "... the loss of the immediate context for an instruction results in the typical language of the training manual which is more abstract ...". As these authors state:

> Frequently employees with limited oral and written English language resources have sufficient language to meet day-to-day demands of their jobs. However they are often unable to access the more abstract language of the enterprise as a whole or of the training room.

Workplace literacy programs

If, as stated in the *International Literacy Year Report* (1990, 29), "literacy is the key which enables workers to gain access to higher levels of skills", and "For workers, better levels of literacy can mean a better chance of satisfying employment", what impact have workplace literacy programs had? Several different types of workplace literacy programs have been described. Askov and Van Horn (1993, 116) describe two different types of programs. The first type of program is for the general enhancement of the workforce; the second is to supply training for the demands of new technology or the changing workplace.

Durie (1991, 79) describes a workplace program which concentrates on the relationship between literacy and consciousness: "In the workplace this would mean literacy and language training that provides workers with the ability to reinterpret their experiences in the workplace and to challenge the traditional role between workers and management".

O'Connor, (1993, 196-197) gives a much broader view of what a workplace literacy program should include:

> ...*any* working definition of workplace basic education would need to include: a range of written and spoken language skills, maths, reading and comprehension, interpersonal skills, communication and problem solving, required in the effective performance of occupational tasks and functions and enabling participation in workplace and social processes. That is, workplace basic education would provide specific task-related learning with broader social and educational objectives as its context and basis. It would also include effective learning techniques and strategies to enable workers to study efficiently and independently....The content and outcome of learning in the workplace must extend well beyond the restrictions of the workplace and into the world of worker's daily lives.

The aim of a workplace literacy program should be to assist people at an operational level to take on the challenges of award restructuring and multiskilling, enable them to seek further career options if they wish, to be informed about the functions of the organisation, and to actively participate in organisational, industrial and community development to the extent that they desire or their role requires.

Bee, (1992, 67) describes a beneficial work-based literacy program as one which provides:

- integration of literacy with competency based training;
- ongoing literacy skills audits;
- development of long term literacy strategies in the organisation;
- Plain English writing of various workplace texts;
- advice to trainers and managers;
- an influence on the training agenda;
- support for individuals with literacy needs;
- first-hand training experience, knowledge and understanding of culture in the workplace;
- credibility in the workplace; and,
- ready access to work-based materials for curriculum content.

This is in tune with the idea that the workplace trainer's role is much wider than that of a person who just provides training programs. Bean (1993, 16) suggests, "The workplace educator is not only responsible for the development of an education program but must also foster and contribute to the creation of an educational climate across the enterprise within which such programs can thrive".

Hull (1993, 44) suggests,

> We need to look with a critical eye at how work gets accomplished and to examine what roles literacy has within work and what relationships exist between skills at work and the rights of workers. We must ask what is meant by literacy, and in what circumstances, this literacy will be empowering.

To do this workplace trainers must listen to workers, "to different voices" (Hull, 1993,

21), see what their realities are, and then they may be able to change the "popular discourse of literacy and work" (Hull, 1993, 22). To provide an effective workplace literacy program it is essential to examine critically the role workers play within the organisation and the tasks embedded in their roles, not just to provide a quick fix, classroom-based reading and writing program or general set of academic skills. (Askov & Van Horn, 1993, 116; Bean, 1993, 24; DEET 1990; Falk, 1992, 3; Falk 1995, 2; Office of Multicultural Affairs et al., 1994 (a), 31-33; Wickert, 1990).

Literacy skills analysis

Several authors (Hamilton & Park, 1993; Baylis, Caldwell & Nussbaum, 1991; Falk, 1995; Taylor & Lewe, 1991; Drew & Mikulecky, 1988; Victorian T.C.F.I.T.B., 1992; Rush, 1985;) describe literacy task analysis, or literacy skills analysis as a method used to identify language and literacy skills required for any given work task. Literacy task analysis is a process, based on the knowledge gained by workers about the jobs they are performing, used to

- identify the basic skills required to do various jobs,
- obtain information about specific parts of a job that require literacy skills, and
- provide direction and scope for setting up a workplace literacy program based on the actual job content, as well as the job content of likely career paths. (Taylor & Lewe, 1991, 217, 227)

Literacy skills analysis is based on research (Drew & Mikulecky, 1988, 1) which indicates that people learn more readily and are more likely to retain information when it relates to job tasks. Literacy task analysis is similar to a traditional job/skills analysis which is "... a way of critically assessing the components of a given job in order to describe the job, determine the required behaviours of that job, and identify the conditions under which these behaviours should occur" (Davies, 1973, 2). With literacy task analysis it is the identification of literacy skills which are embedded in the tasks of a job.

This section has provided a discussion of the literature reviewed relating to literacy, workplace literacy, discourse and power, workplace literacy programs and, finally, literacy skills audits. From this discussion, it can be concluded that the best starting point for a workplace literacy program is a literacy skills audit as a method of "hearing other voices" (Hull, 1993, 43), identifying the literacy tasks embedded in the roles of workers, and finally, isolating any areas of need for inclusion in training curriculums.

THE RESEARCH PROJECT

Methodology

The aim of the research was to complete a literacy skills profile for the organisation, commencing with a pilot program in the Food Services Department. The steps of the pilot program were, for each classification of worker, to identify the current occupational literacy requirements by

- interviewing worksite manager, supervisor and union official
- establishing a worksite literacy consultative committee

- visiting the worksite, identifying the range of work activities, identifying environmental and contextual literacy, investigating the structure of the work-unit and the nature of the workforce in terms of age, sex and language backgrounds
- selecting workers, representing each classification, to observe and interview
- obtaining a copy of the position description and task list for each classification
- interviewing workers and observing them as they performed basic skills/tasks, identifying current language and literacy requirements by focusing on the five skills of speaking, listening, reading, writing and maths
- identifying the thought processes used by competent workers as they use printed materials to solve problems at work
- gathering and photocopying the printed materials workers read to do their jobs: for example, safety manuals, training manuals and other worksite literature
- organising and documenting the results of the literacy task analysis
- validating the literacy task analysis with managers, supervisors, union officials and workers
- making recommendations for workplace literacy training.

Objectives

The objectives of the project were to

- develop and conduct an industry relevant literacy skills audit to obtain an accurate picture of all the literacy skills required in the organisation
- pilot the literacy skills audit in a defined department
- gather authentic texts and tasks to be used in the design of a curriculum
- modify the organisational mainstream Staff Development program to integrate English language and literacy elements
- provide a framework for an investigation into the nature and depth of language and literacy problems in the organisation
- provide the basis for Best Practice in ongoing workplace literacy skills audits
- advise trainers and managers of worksite training requirements on a job-needs basis, only, **not** on a person-needs basis
- influence the organisational training agenda as a result of the outcomes from this project.

The project commenced with an introductory / briefing meeting with both the worksite manager and trainer, both of whom were extremely receptive to the project and demonstrated a sound knowledge of the impact of literacy training in the workplace.

Worksite consultative committee

A worksite literacy consultative committee was established with the following membership: the manager, worksite trainer, supervisor representative, food assistant representative, union representative and the staff development officer / researcher. The role of this committee was to

- promote the project

- advise workers about the project aims and methods and to dispel any myths about literacy and illiteracy
- act as advocates for the needs and interests of workers
- identify workers for interview and observations. This was based on the worker's competence to perform the role / position observed as well as the worker's receptiveness to being a participant in such a project
- provide background information to the researcher relating to current worksite issues
- validate literacy task analysis findings
- provide recommendations, guidance and feedback to the researcher about planned literacy training.

Using frameworks developed by Baylis, Caldwell & Nussbaum (1994), and O'Connor (1992), data collection consisted of two main types - interviews and observation. It was the intention of the researcher to gather worksite texts and examine these as part of the project, but time constraints impeded this and it has been deferred until time permits.

Two different interview forms were drawn up; one for supervisors, and the other for workers. The questionnaire for supervisors included demographic details of the work area: number of workers in the area, male / female ratio, work status - casual, full time or part-time, and language background (questions 1, 2, and 7). Questions 3-6 asked the supervisors to identify the workplace texts or literacy skills with which they or their workers had difficulty and they were then asked (question 8) to prioritise the skills identified. The final two questions related to the supervisors' or workers' readiness to receive assistance or training in a workplace literacy program.

The questionnaire used for employees asked participants to identify workplace texts which caused workers problems. Literacy texts / tasks were grouped according to Joyce's (1992) categories into two major areas - those texts / skills which related directly to the job, and those relating to employment and the organisation, for example, pay / personnel, health and safety, stores, unions, etc.

The second type of tool developed was an employee observation form. This form was used to indicate the literacy skills identified for each job task observed by the researcher. Literacy tasks were classified as listening, speaking, reading, writing, and maths (as suggested by Baylis, Caldwell & Nussbaum, 1991, 11).

Audit process

Two distinct work areas within Food Services were chosen by the consultative committee for the commencement of the auditing process. It is the intention of the researcher to complete the auditing process throughout this department and eventually the whole organisation.

Description of the first work area audited

The first area chosen for auditing was the Food Distribution area. This area is involved in the distribution of meals and drinks for the hospital's patients. A brief description of

the work of staff employed in this area is included to set the scene for the audit process. Staff are involved in the serving of meals for patient consumption onto individual trays on the processing belt. (As the organisation uses a cook-chill system these meals are already pre-prepared by kitchen staff.) Once meals are served onto trays they are then placed into a trolley and delivered to the hospital wards, where they undergo a heating process. Whilst this occurs the staff clean up the belt area then arrive on the allocated ward to serve patient meals and drinks. Following each meal the staff then deliver trolleys back to the kitchen and work on the dishwasher belt before beginning the preparation for morning / afternoon teas and then the following meal.

Worksite tour

Following the formation of the worksite literacy consultative committee, the researcher, accompanied by the worksite trainer, toured the worksite and was introduced to any staff members present. The purpose of the worksite tour was to orientate the researcher to the work environment, to the type of work performed and to the workers. This tour was followed by a meeting in the worksite with the group to be audited. The worksite trainer provided a brief introduction of the researcher who then outlined the process for auditing as well as the overall aim of a workplace literacy program.

At this point, it is worth noting that following discussion with the consultative committee it was decided to use the term literacy freely in the worksite, attempting to dispel any myths relating to literacy / illiteracy, and also as part of the researcher and committee's desire to be totally open and honest with all staff involved in the project.

Following the initial reaction from the workers, including the comment,"we are not illiterate, if we were we wouldn't be working here", a discussion took place where the researcher described literacy as a skill acquired at many different levels; from learning basic reading and writing skills through to a managerial level and the production of complex reports, etc. Participants were also encouraged to view the project as something which would be beneficial to themselves as community members and parents, as well as in their roles as workers.

At least two of the people present at this 'briefing' were previous participants in the one-to-one literacy consultancies offered by the researcher, as described earlier in this paper. This had the effect of establishing immediate trust and rapport between the researcher and the workers aware of both this relationship and the effect the program had had on these people. As the worksite trainer was well respected amongst the staff involved in the project, her endorsement of the project also added to the acceptance of the researcher in the work area.

Those employees selected by the consultative committee to participate in the first part of the project were introduced to the researcher by the worksite trainer in individual meetings over the following few days. The trainer described the project to the employees and introduced the tools to be used in the audit process. The selected employees were asked if they would like to participate in the project, and dates of observation and interview were negotiated. As well, times to be observed during the shifts where tasks

would differ were established. No employee approached declined the opportunity to participate in the project.

The researcher would like to stress at this stage how critical the role of the worksite trainer was in ensuring the acceptance of the researcher and the project to the workers involved, as well as in the day-to-day planning of rosters, etc.

Data collection

For each classification of worker the researcher followed the same process. During each period of observation the researcher would observe and document, on the observation form, a description of the task performed, indicating which literacy skills were used. The observation of each participant was for an average of four to six hours.

At the completion of the observations period the documentation was discussed and validated by the participant. Using the interview questionnaire as a checklist, each participant was interviewed by the researcher. For the employees (that is, not supervisors), the researcher stressed that the questions related to workers in their role or classification, and not to themselves.

During the observation phase of the audit the researcher was readily accepted in the workplace by workers, using humour to alleviate any nervousness displayed by those being observed. At the completion of the observation and interview phase for each of the areas, data was analysed and recorded. For each classification of worker, data was compared to duty statements to validate information collected and to check that all tasks performed in that role were observed.

The final report for each area included a list of tasks observed for each classification of worker. (The description of the supervisor role audited also included tasks not observed during the audit but discussed with the researcher.) The percentage of job tasks observed requiring literacy skills was calculated as a percentage and tabled. This provided a comparative study of the literacy skill requirements for each classification of worker in the unit (see Appendix [4]). In most cases, speaking and listening occurred simultaneously during a task and these results were combined.

Results

In the first area audited, six different classifications of workers participated in the auditing process. For the 6.30 a.m. - 2.30 p.m. position it was decided, by the consultative committee, to observe a competent worker and a new employee, although each performed different tasks during the observations. This decision was based on the premise that competent employees may not recognise the difficulties new employees experience in a particular position.

A total of sixteen duty statements were collected for this area and although each position these represented was not directly audited by the researcher, a perspective on these positions was gained during the observation of workers alongside them. This work group contained sixty workers; fifty-seven females and three males. Twenty-five of the workers were employed full time, eighteen were part-time and seventeen were casuals.

Data collected from the interviews was collated and recorded as an overall summary .

All positions audited required some degree of literacy skills. The position requiring the minimum amount of literacy skills for the tasks observed, Gopher 1, required literacy skills for 35 % of the tasks observed. The positions requiring the highest percentage of literacy skills for tasks observed were those of the Supervisor and the Food Monitor. As the types of literacy skills described often occurred concurrently it is difficult to give an accurate total, although it is worth commenting that 93 % of the Supervisor's tasks required reading and writing skills. The Food Monitor's tasks required reading for 77 % of the tasks observed, writing for 71% and 28 % of the tasks observed required mathematical skills.

Of the tasks observed for the 7.30 a.m.-10.30 a.m. position, 29% required mathematical skills. These tasks related to menu choices for a small number of residents, whereas the Food Monitor position required calculation of menu choices for each ward in the hospital. These choices were tallied concurrently and a 'tally' machine was utilised for this purpose by the person audited. The documented skills audit for each position audited (see Appendix) describes the tasks observed. These can be used as examples and/or strategies for teaching the literacy skill types embedded in each. For example, to teach writing and reading skills to a participant in, or aiming for, the position of Supervisor, a worksite roster with a list of staff calling in on sick leave, and the adjustment sheets, would provide rich resources for a training session.

Areas identified by employees as those texts/tasks causing problems are spread throughout the tasks directly relating to the job and those tasks relating to employment and the organisation. Other areas identified by employees included those that would assist them in the literacy tasks associated with job tasks, for example, altering menus to make them more user- (client and worker) friendly, or those associated with texts relating to employment and the organisation, for example, the use of Plain English.

Participants also identified other training needs relating to their positions, such as: being assertive, resolving conflict and dealing with the frail elderly, etc. At this point the report was taken to the consultative committee for validation and discussion.

It was decided to present the results to staff in the area in a meeting. This enabled staff not involved in the project to ask any questions and/or comment on the project. The researcher also took this opportunity to thank participants involved in the project and to commend them on the commitment they had to their work and the degree of skill involved in each of their positions.

Using areas identified as difficult or a problem in the interviews, a training needs analysis questionnaire was designed and this was presented and circulated at this meeting. The return rate for this survey was disappointing (only ten returns out of a possible sixty). The reasons for a poor return rate were discussed at the next consultative committee meeting and it was decided to

- offer a training session for employees on selection process at this stage;
- to thank, in writing, all people who responded to the questionnaire and notify them of the plan;

- seek further information on "Expressing myself in words" from those who identified this as an area of need;
- repeat the survey following the second work unit audit; and
- offer programs identified in both audits to all of the employees in the areas involved.

The results of the further survey on "Expressing myself in words" was very good. Six of the original 10 respondents had identified this as an area of need. Seven surveys were returned, collated and recorded. The results of this survey clearly identify topics for curriculum development for a literacy program, for example, report writing, resume writing, and completing incident forms.

Description of the second area audited

The second area audited was based outside of the main setting where the rest of the research was conducted. This area was chosen as it was to be relocated to the main area already described. It was felt this area had priority due to the issues for staff arising out of relocation and the changes that would occur.

Audit process/findings

The same procedure was used as for the first group, and the results were recorded. This area was smaller than the first, with staff multiskilled in several of the classifications in the first area, as well as in others. Seven positions were audited, representing each of the duty statements collected. A total of thirteen staff were employed in this area, all of whom were female. Five staff were full time and eight were casual employees.

As expected from the results of the first survey, the supervisor position required the highest amount of reading and writing skills. Mathematical skills were required in all other areas except one, although this reflected skills observed at the time of the audit only. Examination of the duty statement for this position revealed tasks where some mathematical skills are required. As noted in the discussion on the results of the skills audits for the Distribution area, information gained during auditing provides strategies for a curriculum teaching literacy skills related to tasks performed in the job. The areas of training-needs identified in the second audit are very similar to those in the first, and a curriculum developed from these would be suitable for both groups.

Analysis

Discourses which exist within the layers of workers employed within a traditional hospital setting, in community and health services, continue to disempower operational workers and 'serve to keep them in their place'. Traditional Tayloristic management practices have created an organisational structure that is multilayered both vertically and horizontally. Recent changes in Australia's workplace reform aim to undo the layers and create a more flexible work environment for managers and workers. Workplace literacy programs which challenge the traditional relationships between management and workers, as described by Durie (1991, 79), will compliment these changes and may provide workers with some of the skills they require to adapt to the new workplace.

Literacy skills audit

The results of the literacy skills audit confirm that literacy skills within the community and health services workplace are embedded within the tasks which relate to the following contexts: the job context, the enterprise context, and the broad industry and training context.

Those areas identified by supervisors and employees as being difficult or causing problems generally incorporate skills relating to the enterprise or the broad industry and training contexts. This is in keeping with the idea that as the context changes, throughout a continuum from job context to enterprise context, to broad industry and training context, the literacy skills also move along a continuum from concrete to abstract. This also equates to the idea that the literacy requirements of jobs, as they are plotted against the Australian Standards Framework levels, are also moving along the same continuum. Changes occurring within the organisation that are part of national reforms place workers further along the continuum and heighten the need for a change in the type of training delivered in the organisation.

Integrated training program

The process of developing a worksite literacy profile which identifies the literacy requirements of each position within the organisation provides the workplace trainer with valuable data to develop a literacy skills program which can be integrated into the mainstream organisational training program. As stated by Prince (1992b, 12)

> ...unless language and literacy skills development is integrated in mainstream training activities many employees may be excluded from successfully participating in workplace training for a considerable time. This seems contrary to the spirit of Award Restructuring and agreements which seek to establish career paths for waged employees.

The provision of separate literacy skills training prior to entry into the mainstream program runs "...the risk of marginalising literacy ..." and perpetuates

> ...the ongoing promotion of the common but incorrect perception that there is a 'basic' literacy and numeracy which can and should be acquired in a nominal period of time, ... and which once acquired, will enable employees to participate effectively in all subsequent training opportunities.

The provision of an integrated program is in tune with adult learning theories which suggest that adults learn best when it is relevant and directly relates to their job.

Traditionally, training and training materials have been "...developed without reference to language, literacy and numeracy levels in the workforce". They are often designed in "...a form that assumes that the audience is all the same and that information and its communication are equally accessible to all workers". (Office of Multicultural Affairs & Dept. of Prime Minister and Cabinet, 1994a, 32, 33). To meet the needs of workers within the described organisation it is necessary to develop a program where their literacy skill requirements are integrated into the organisation's normal training

program. To further develop this it will be necessary to complete the work commenced in the Food Services department throughout all departments where operational workers are employed throughout the agency.

An unexpected benefit of an internal auditor completing the literacy skills audit was the understanding of the tasks involved in each classification of employer. This also established credibility for the researcher in her role as staff development officer for this area, due to the time and interest shown when working with workers. This was demonstrated by comments like, "no one has ever been this interested in what we do before". The role of a worksite consultative committee and worksite trainers, where they exist, are integral to the success of literacy skills audits and the identification of needs and support of a program developed from this process.

Plain English

Results from the data collected in the workplace reinforced Fairclough's view of "discourse and power". The workplace researched provides an example of how professionals adopt specialist vocabularies and jargon which contribute to the disempowerment of many workers, particularly those from the operational stream.

The development of workers' literacy skills needs to be accompanied by an effort to ensure that both the spoken and written language used within the organisation is accessible and appropriate to all of the target audience (Mawer, 1992, 21-22). Texts identified by the participants in the audit as being difficult are often integral to employees' ability to function effectively within the workplace. It was alarming to find that documents such as payslips and accident reports are often difficult to understand. Areas of difficulty such as 'writing a resume' or 'understanding union and fact sheets' could be addressed by an organisational / industry move to produce these in 'reader friendly' terms.

CONCLUSION / SUMMARY

The researcher has described a workplace literacy program in its embryonic stages in a hospital setting. Previous attempts to provide a mainstream training and development program did not alter the organisational culture where workers at the operational level were disempowered by the multiple levels of professional workers which stem from Tayloristic management practices. The issues raised initially by the researcher have formed the framework for this paper.

- *Do I offer two levels of training: one for professional and one for operational level staff? Or does this continue to perpetuate the inequities and division between levels of workers?*
- *Do I offer pre-course training or a 'bridging' course to operational level staff as a 'stepping stone' to the mainstream program?*
- *Do I offer training at the middle of both levels and run the risk of meeting no-one's needs?*

The questions raised in these issues have not been answered totally by the

research. The description of the workplace and the problems arising out of the multiple layers of the vertical and horizontal hierarchical system suggest that a change in the current training program is a starting point to the empowerment of operational workers within the organisation. The criticism (Prince, 1992b, 12) of bridging training programs for workers at the lower end of the hierarchy suggest that this will further marginalise these staff and perpetuate the myth of literacy as a set of basic skills. The literacy skills required by staff to be able to function within the organisation need to be integrated into the mainstream staff development program.

- *Do I offer a workplace literacy program? And if so, to whom? Or do I offer a Plain English program to 'professional' staff?*

The literacy skills audit has identified several areas of problems or needs for training which addresses these issues. The program should be offered to staff in those areas who participated in the pilot project initially, and then to those in other areas as they are involved in the auditing process. Work place literacy audits, using the model developed for this project, should be conducted throughout the organisation in all areas where operational workers are employed.

The need for a Plain English program across the organisation is essential to shift the use of jargon and professional discourse as a means of gatekeeping and 'putting people in their places'. The issue of power and discourse as it relates to external customers of community and health services has not been explored in this paper and warrants further research.

- *Whose objectives am I meeting in doing this: The Training Reform Agenda's? The 'disempowered' workers'? The Staff Development Officers'*?

The objectives of a workplace literacy program, as outlined in the paper, are to assist people at the operational level to take on the challenges of the changing workplace, to seek further career options, to be informed about the functions of the organisation and to actively participate in organisation, industry and community development.

The final issue identified by the researcher is *Is there really a literacy gap in the organisation?* This is dependant upon the chosen definition of literacy. If workplace trainers adopt the definition of literacy outlined in this paper as a set of skills which enables people to function within their own group, then to answer this I must raise some further questions: *If I am unable to utilise texts that I come across on a day-to-day basis in my job, am I functional? If I am unable to interpret my payslip or fill in an accident form?* I conclude that these workers are not functioning at a level were they are informed participants of an organisation and until they are there is a literacy gap within the organisation. This literacy gap can be addressed through a workplace literacy program which is integrated into the mainstream training and development program and the organisation's adoption of a Plain English program.

A further research project, which identifies texts and/or writers of workplace texts which cause readers/users problems, needs to occur as a basis for a workplace program of Plain English.

This project started out as a means of identifying a curriculum for a workplace

basic education program for those workers who needed to upgrade their literacy skills. As often occurs with research, the outcome of this project has gone well beyond the initial ideas of the researcher. The research has identified the need for a workplace literacy program which is integrated into the mainstream staff development program, as well as an organisation-wide program on Plain English.

APPENDIX [4]
Literacy Skills Audit completed in Food Distribution in the following areas
Food Monitor
Trolley Person
7.30 a.m. - 10.30 a.m.
6.30 a.m. - 2.30 p.m. Gopher 1
Food assistant
Supervisor

Duty statements collected
Meals on Wheels
Diet Drinks
Low Chol. Sandwiches
Food Monitor 1
P.M. Food Services Assistant - supper
Kitchen 1
4.00 p.m. - 7.30 p.m. F. S. Assistant
Wash up 3
Wash up 1
Trolley Person
Gopher 1 and 2
A.M. Food Services Assistant
. 6.10-2.30
..6.30-2.30
Distribution Supervisor a.m. & p.m.

Total number of workers = 60
male = 3 female = 57 full time = 25 part-time = 18 casual = 17
Percentage of job tasks observed requiring literacy skills

POSITION	% of tasks requiring literacy skills			
	READ	WRITE	SPEAK/LISTEN	MATHS
7.30-10.30 Ainslie	-	-	47%	29
Trolley Person	25	7	9%	15
6.30-2.30	30	-	30%	-
Gopher 1	11	3	14%	7
Food Monitor	77	71	37%40%	28
Supervisor	93	93	27%	37

SKILLS AUDIT

POSITION: Food Services Assistant 7.30-10.30 a.m.

Job tasks observed

Wash up
- . unstacking dishwasher
- . checking and returning any dirty dishes to sink
- . packing up after wash up
- . dismantle dishwasher

hose down floor and scrape clean
notify supervisor of any faulty equipment
clean around the food lift
clean trolleys
clean down belt from dishwasher
Distribute lunch at Nursing Home
- . dish out sweets
- . fill dishwasher
- . wash up dishes
- . talk with residents
- . count number of residents for lunch
- . serve out meals
- . take meal orders from residents
- . notify cook of meals

POSITION: Trolley Person

Job tasks observed

. collect trolleys from wards
.count trolleys to check they are all in
. stock up jams
. check breakfast foods, stores, condiments and gloves
. order stores
. restock containers for sugar etc
. put out rubbish
. returns stores to fridge
. collect ice-cream from freezer for wards
. collect milk from milkroom for wards
. record amount of stores collected
. collect cups to take to wards
. stock up ice-cream in each ward
. stock up cups in each ward
. record amount of ice-cream delivered
. deliver ward sheets

. take lunch trolleys to wards
. turn trolleys on
. sweeps floors in plating room
. wash mats. turn on ward trolleys
. continue sweeping floors
. clean benches
. fill up sinks
. turn off dishwasher
. clean benches/belt of rubbish
. turn wash up belt around
. tong ward trolley (i.e. place hot food on patient meal trays)
. deliver trolley to ward
. return to belt
. refill detergent bottles
. clean down trolleys
. complete stores order and collect
. empty rubbish
. copy stores order into book
. prepare late meal (following handwritten order from food monitor)
. deliver meal to ward
. put stores away
. clean dishwasher
. wash floor (hose & scrape)
. wipe down dishwasher and put back together
. assist food monitor to collect late meal
. wipe down benches
. clean sink
. remove food debris from sink
. collect laundry and 'bag'

POSITION: Food Assistant 6.30-2.30

Job tasks observed

wash up
. clear trays from trolleys
. empty rubbish and food scrapes into bins
bag cutlery
help tidy up after wash up
distribute morning tea to patients on wards
unpack tea trolley
assist lunch time belt
distribute lunches to patients
. wait for trolley to complete heating meals

. 'tong' meals
. deliver meals to patients
. re-arrange patients' overbed trolley to assist patient to reach meal
. assist with lunchtime drinks

POSITION: Food Assistant 6.30-3.20 Gopher 1
Job tasks observed
serve sweets for 'meals on wheels'
clean off serving trays and take to wash up
clean up around belt
'bag' bread
record food wastage
set up belt
bring out trolley
unpack trolley for belt
ask for any missing items
stock up trolley with bread & butter
set out mayonnaise sachets
put out serving utensils
strip down drink trolley and wash in ward pantry - prepare trolley for lunch
top up sugar, Milo, etc.
wash up from morning teas
clean floors
check rubbish bag and change if necessary
check and tidy fridge
top up milk, etc.
collect any late meal trays, strip and wash and leave on trolley
Children's ward pantry
check milkshakes and cordial jugs
wash out jug and make up with new flavours.

POSITION: Food Monitor
Job tasks observed
. check patients completed menu's against ward plan
. complete details
. place into ward piles
. discuss with Diets person an order for Sustagen
. answer phone meal orders
. ring wards to confirm/clarify ward lists
. work on food belt (special diets)
. check meals served
. control food belt

. help tidy up after belt
. alter photocopied ward list with adjusted original
. check patients completed menus on wards
. collect menus from patients not completed by nursing staff and adjust ward lists.
. place dots on menus to indicate special diets
. check menus against ward diet list.
. total number of meals gone out and number of alterations.
. photocopy menus
. stock up on all forms
. alter menu from answer machine
. check trays from belt line
. complete fluid list
. record tally
. complete list for wards
. give out menus to patients and answer any queries
. photocopy x 3 ward lists
. write up diets and fluid lists for next day
. record number of incomplete menus for wards
. update menu in office
. tally number of foods to prepare for each ward - using 'tally' machine -from menus of each meal/ward
. answer queries from other staff members re number of meals required.
. add up totals on tally sheets and record on list for kitchen
. document special orders, sandwiches, sweets etc.
. use calculator to count and recheck tally
. record requisitions taken to ward
. ring ward for meal changes
. collect patient satisfaction survey x 1 month
. interpret dietitian request on weekends.

POSITION: Distribution Supervisor

Job tasks observed

check roster

replace staff on sick leave

-ring staff to call in for replacement
-complete adjustment forms
-discuss with other supervisor staff available to call in
-check staff's phone number in book
-notify staff of change / replacement.

take change of meal order message from ward over the phone

-record and pass change on to food service assistant

record special order from ward

alter rosters
discuss with staff member work related injury
- investigate injury
- identify report to be completed

check temperature of heated meal on ward with temperature probe
- record ward and trolley number
- record temperature for each meal

check presentation of meals
audit pantry
- check for cleanliness and record
- check supplies in fridge

record amount of milk, orange juice, bread delivered to the ward
record sandwiches, salads, hot meals delivered to accident and emergency department.

Jobs discussed (Not observed)
kitchen hygiene audits
patient satisfaction audits (six patients from three wards)
day book - record staff on shift to check time sheet against
rosters - computer roster available from deputy manager (six weeks in advance)
- allocation of staff to wards
- enlarge and allocate numbers for dishwasher belt position
- record pool roster

work on belt
- shunt trolleys

test and record cool room temperature
check time sheets
attend supervisors meeting and quality assurance meetings
set up belt.

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HOW CAN LANGUAGE RESHAPE THE MATHEMATICAL KNOWLEDGE OF THE ADULT LEARNER FROM THE INFORMAL TO THE FORMAL?

Toni-Anne Carroll

INTRODUCTION

In this study I show ways in which adult learners reshape their informal everyday mathematical knowledge into curriculum-based school mathematics. In particular, attention is paid to how the individuals move from informal folk language into the formal discourse of mathematics appropriate to a hierarchical context.

I have observed that there are many adult learners in our Adult Literacy and Basic Education (ALBE) groups who demonstrate through their interests, hobbies, work tasks and home duties, a mathematical knowledge that they use every day. These adults also indicate that they believe that there is an inadequacy in their mathematical abilities. They come to classes, often anxious about studying mathematics again after many years away from school and often with negative memories of that experience, with an expectation of gaining the skills required to place them on a hierarchical scale of formal mathematical knowledge.

At the first meeting with a group of adult learners in ALBE I discuss conjointly with the participants their perceived individual needs and demands. As the tutor, I am left with the perplexing question of what I have to offer each individual and the group. There is the requirement to talk with the adult learners, to listen and to reflect. I hope that, through this, we will build up a trusting relationship: one in which the adult learner recognises and voices past perceived failures and offers his or her needs and goals. By voicing my confidence and communicating positive expectations I hope that the adult learners will be prepared to take risks in developing the new mathematical discourse, knowing that mistakes and attempts will be accepted and valued, and that my feedback, as well as that of other group members, will provide more encouragement and direction.

Working together as learner-teacher in a non-hierarchical group situation I hope that we look beyond the notion of mathematics as a tool for daily survival and build on the learner's informal mathematical knowledge to move towards a more formal and explicit language and discourse that represents the meaning and reality of subject mathematics. I intend the adult learners to take responsibility for their own learning through generating questions, negotiation, and response to problems by immersion in the discourse of formal mathematics.

As we progress from the real world language with its associated formal invented strategies to the language of the classroom, I introduce a formal mathematics language to the adult learner which is learned, with new meanings in new contexts. These languages are woven and intertwined with social and cultural aspects of mathematics education.

LITERATURE REVIEW

Mathematics education is a constant and dynamic process which operates from early childhood to adult maturity. Language serves to present mathematics to the student through school curricula and, in turn, the student can express him/herself mathematically through language. We all grow to use mathematics in functional ways as our societal needs demand, and in doing so we develop a language appropriate to the needs.

Bishop (1993) defines numeracy as "the mathematical knowledge needed by every citizen to empower them for life in that society" (p. 148). Bishop finds that numeracy sits within a certain societal context and different societies demand different numeracies (pp. 147-158). If numeracy is culturally based and socially situated, as Bishop argues, then the alienation from school mathematics becomes more definite in terms of how numeracy is assessed and its value in the real world. The school mathematics curriculum K-12, with all the developments of recent arcades, is still essentially technique-oriented, based around procedures, methods, skills, rules and algorithms (Bishop, 1988:7).

Typically, our school curricula follow a definition of mathematics along similar lines to that of Bradshaw and others:

> The term mathematics in the generic sense relates to the numerical and spatial activities including the use of calculators, estimation, appreciation of shapes, size, direction and measurement; problem-solving and logical reasoning; and the interpretation and language of mathematical data and information (Bradshaw, Evans, Tout, Treloar & Waterhouse, 1989:2). However, Willis states that, "Being numerate, at the very least, is about being able to use mathematics - at work, at home, and for participation in community or civic life" (Willis, 1993:84).

From the hierarchical and systematic environment of previous decades has emerged a generation of adult learners, enriched with life experience, who measure success in mathematics as being able to obtain accurate answers to mechanical problems on each step of an inflexible ladder. In doing so, these students have endured much boredom and are often left with the legacy of low self-esteem and feeling anxious about further study in mathematics.

Bishop argues that we can remove the fear of and failure in becoming numerate from our adult learners by emphasising their strengths and existing competencies (1993:147). Further to this, Bishop develops the concept of 'ethnomathematics', within which he focuses on (a) mathematical knowledge in traditional societies,
(b) mathematical developments in non-western cultures, and (c) the mathematical knowledge of different groups in society (1993:151).

In his study, Bishop states, "... all mathematical knowledge which has been documented in different societies is analysable into six main categories: counting, locating, measuring, designing, playing, explaining" (1993:151). Within each societal domain, we find adults who have been deemed failures in the school culture and yet they operate efficiently and competently in all these activities.

When these adults return to the school-based society in order to gain further qualifications or personal achievements ALBE staff need to bridge the gap that exists between their cultural and societal knowledge and the institutional and pedagogical requirements. Willis states, "Many people do feel quite powerless in the presence of mathematical ideas and this kind of powerlessness has been systematically reinforced in our culture which sees mathematics as accessible to a talented few" (1990:17). Bishop discusses the process of "mathematical enculturation" (Bishop, 1988) which takes significant account of the social context of the learner and through interpersonal and interactional activities enables the learning to become formal, institutionalised and accountable.

Much emphasis has been placed in the past on the mathematics student eventually becoming a user, and the need for mathematics to have a functional nature, modelled on everyday tasks such as shopping, budgeting and home improvements. Mathematics in this way is regarded as a tool for daily survival. In this study, however, I am interested in the situation where an adult, a storehouse of life experience and unrecognised informal mathematical knowledge, reverses the process and wishes to gain access to the institutionalised, curriculum-based qualifications which deem a person 'successful' in mathematics in order to gain access to pre-vocational training or further education. Typically, such a student would be enrolling in a Grade 10 syllabus Mathematics course conducted by Adult Education, lacking the formal language of mathematics which is often symbolic and specific with new word meanings in new contexts. Too often the systematic universality of mathematical truths can sometimes become the focus of school syllabuses, and this may alienate the individuality of the learner if there is not regard to social and cultural contexts.

School mathematics is a complex pedagogical process that incorporates many language and learning theories. Bickmore-Brand nominates several strands of pedagogical ideas which represent consistency across the various theories (1990:2):

1. context; whereby there is a meaningful and relevant context for the transmission of knowledge, skills and values.
2. modelling; where the student has the opportunity to see the knowledge skills and values in operation by a 'significant' person.
3. scaffolding; where the student is challenged to go beyond current thinking.
4. metacognition; where the learning processes which are occurring in the classroom are made explicit.
5. responsibility; where the student can accept increasingly more responsibility for his or her learning.
6. community; in which is created a supportive classroom environment, where students are free to take risks and be part of a shared context. (Bickmore-Brand, 1990:1-9).

While centred on school-learning for the child, the Bickmore-Brand study has important implications for the adult learner in a mathematics classroom.

Placing the mathematical teaching of new concepts in context is particularly relevant to the adult learner. In a study of mathematic tasks in a range of eleven classrooms,

both primary and secondary, Marks and Mousley found that the communication of mathematics in the classroom became increasingly divorced from the real world as the student progressed through the hierarchy, and that students were generally not encouraged to bring their worldly experiences to the classroom or to communicate them mathematically (Marks & Mousley, 1989:142-148). Further, Marks and Mousley report that there were "very few opportunities for students to talk, create or record non-algorithmic mathematical ideas" (p. 145).

Here lies the key to unlocking one door of adult mathematical learning. An Adult Education tutor must encourage the adult learner to express him/herself mathematically. Mathematics is embedded in so many aspects of daily living and in a wide variety of everyday tasks. In a report on Adult Education, Bradshaw and others state:

> Selecting appropriate contexts for learning is an essential part of integrated teaching. Contexts for learning can arise from an area of particular interest, an everyday function or an issue of concern to students. The context provides a focus and purpose for literacy and numeracy activities, and the use of real language and mathematics (Bradshaw et al., 1989:63).

So many mathematics resources in a syllabus are quite decontextualised in script and setting. More often than not, assessment at Grade 10 level is still by the perceived ability of the student to work through a set of problems, which are coded in highly specialised words and symbols, and deriving answers from processes which bear little relevance to the student's experience. According to Bickmore-Brand, "The 'context' strand recognises as a feature of mathematics genres that are largely decontextualised, and that in order for children to assimilate concepts embedded in these mathematical texts the teacher must start where the child is at" (Bickmore-Brand, 1990:7). Bishop argues that, "Even if content is specified by a curriculum, the context for activities and tasks is open to choice by teacher and students" (Bishop, 1993:154).

As Willis says, "numeracy is about using mathematics", (Willis, 1993:85) and it is within the context of the various uses of mathematics such as counting, measuring and designing, that the adult should be learning and developing the language of mathematics. Bradshaw and colleagues observe that, "For any contextually specific material, there will be some students for whom the context is unfamiliar or to whom it does not appeal. The student for whom this is the case may not benefit from that particular activity" (Bradshaw et al., 1989:64). Context alone does not ensure that the adult learner will transfer new acquired knowledge or language to other appropriate situations.

Bickmore-Brand discusses the need for the teacher and student to jointly reconstruct situations where a new concept can be used in a way that is relevant to the student. (Bickmore-Brand, 1990:3). Together they can then generate the underlying rule which accompanies that concept or operation. In this partnership the adult has the opportunity for 'modelling', according to the Bickmore-Brand concept (1990:2).

If we move away from a routine, procedural method of mathematics teaching then we move towards a holistic, process approach, which is more appropriate to the adult learner. Bickmore-Brand and Gawned discuss the concept of scaffolding for

improved mathematical understanding (Bickmore-Brand & Gawned, 1990:43-58). The term 'scaffolding' first came from work by Vygotsky (1962), based on the traditional didactic approach, where there are clearly designated mentor and learner roles. In the learning context the dyad provides the instructional opportunity which enhances the learning process.

Another researcher in the Bickmore-Brand and Gawned model (Bickmore-Brand and Gawned, 1990:44) is Cambourne (1988) who sees the student's responsibility for extracting any instructional potential from a situation as having greater impact in the learning process than any direct instruction from a teacher. The Bickmore-Brand and Gawned (1990) model cuts across both natural language learning theories. They stress the need for flexibility in scaffolding: "At time the role will be traditional with the child being the learner and the adult being the teacher and at others the child will take on the lead and use the teacher's language while the adult is more passive and non-directive" (Bickmore-Brand, 1990b:46).

In the discourse of the classroom then, there will be connections between language, power and ideology (Fairclough, 1989:5). Fairclough describes the discourse view of language as a form of social practice with the following implications: "Firstly, that language is a part of society, and not somehow external to it. Secondly, that language is a social process. And thirdly, that language is a socially conditioned process, conditioned that is by other (non-linguistic) parts of society" (Fairclough, 1989:22).

Scaffolding is the practice of building on what the child appears to know in order to stretch the child to the next stage of development (Bickmore-Brand & Gawned, 1990:43). In relation to this study on adult learning, scaffolding would then mean building onto the adult's current knowledge and perspectives of mathematical language in order to develop a new appropriate formal language. In order for this to be effective there must be mutual understanding between tutor and student as to the requirements and directions for further understanding.

Cambourne outlines what he sees as the most common interactions in scaffolding:

- *focusing* on a gap which the learner needs,
- *extending* the learner by challenging and modifying the student's control of what he or she is trying to learn,
- *refocusing* on the learning need, and
- *redirecting* by offering new information if there is a discrepancy between the learner's intent and the teacher's expectations (Cambourne, 1988:117).

Bickmore-Brand and Gawned conclude by stating that "scaffolding should consist of a blend of focus questions interspersed with comments, information, suggestions and modelling of metacognitive language and the language of the task" (Bickmore-Brand & Gawned, 1990:54).

In her description of the pedagogical states which comprise school mathematics learning, Bickmore-Brand discusses the concept of 'metacognition', or the notion of making explicit the learning processes which are occurring in the classroom (1990:2).

Through the experience of using mathematics and finding new methods to solve problems, students can discover how the skill or concept can be used in one situation, such as a real world context with which they are familiar, and how then this can be transferred to other situations immediately. Much of this process involves making choices about methods which are appropriate in different circumstances.

Vygotsky, when referring to the cultural, professional and civic world of adults observes

> If the milieu presents no such tasks to the adolescent, makes no new demands on him [sic] and does not stimulate his intellect by providing a sequence of new goals, his thinking fails to reach the highest stages, or reaches them with great delay (Vygotsky, 1962:108).

Willis argues that "Students should learn to recognise when mathematics might be useful and what is the more appropriate mathematics in the given circumstances" (Willis, 1990:10). Adult learning, therefore, should present the student with complex activities in which all the basic concepts and methods can be trialled and investigated. Through this process, the adult learner will develop an increasingly complex mathematical knowledge and language.

Integral to the development of mathematical knowledge and language is the notion that the learner takes ownership of the learning. Using their own experiences, adult learners can generate their own investigations. They can utilise the willingness to work on problems in order to find satisfactory solutions. With a purpose for pursuing a particular line of study, the adult learner will take more responsibility for his/her learning. In order for this to happen, however, the tutor must provide a supportive environment where plenty of time is allowed to explore a medium or activity, and where the student is prepared to take risks and step out beyond his/her field of known comfort.

In this study, I show how the strands of complex pedagogical theories as outlined previously may be applied to the reshaping of informal everyday mathematical language into the formal mathematics language of the classroom. Classroom mathematics language is highly complex, often specialised, consisting of carefully defined symbols that represent fundamental concepts. So often the students' understanding of mathematics is dependent upon their knowledge of mathematics as a language (Millar, 1993:311). The language of mathematics can be considered as a semiotic system (Halliday, 1975:61). Other theory and research relevant to the relationship between language development and the learning of mathematics is by Vygotsky, who states, "Word meanings are dynamic rather than static formations. They change as the child develops, they change also with the various ways in which thought functions" (Vygotsky, 1962:124).

Written language is used in mathematics to externalise thought in a relatively stable form and is often formal on all levels of the semiotic system. Spoken language, however, is more likely to be informal. Halliday argues,

> It is wrong, therefore, to think of the written language as highly organised, structured and complex while the spoken language is disorganised, fragmentary, and simple. The spoken language is every bit as highly organised

> as the written, and is capable of just as great a degree of complexity. Only it is complex in a different way (Halliday, 1985:87).

Talking is central to the process of moving from the informal folk language of our adult learners to the refined formal language of the classroom. In this study I investigate how various forms of discourse enable adult learners to use their own language in the learning of mathematics and then to move into the formal language.

Halliday describes the linguistic notion of register as "a set of meanings that is appropriate to a particular function of language, together with the words and structures which express these meanings" (Halliday, 1975:65). In mathematics language there are many specialised words forming the vocabulary which have no direct meaning in other registers. Millar observes that "Many mathematical words represent concepts and not objects" (Millar, 1993:312). Examples of such words which have no equivalent meaning in other registers would be 'quotient' and 'factor'. Another particular linguistic challenge of mathematics education is that of lexical ambiguity, which relates to the ambiguous use of words across different semiotic systems.

In their study of primary and secondary classrooms, Marks and Mousley found that language was not used as a major vehicle for exploring mathematical concepts and that "students scarcely produced any language of their own about the mathematics they were doing" (Marks & Mousley, 1989:146). Further, Marks and Mousley found that generally there was an imbalanced one-way communication of ideas, "where students were receivers, rather than creative users of mathematical language" (1989:146). Millar argues that empowerment of the student is achieved by making the connection between the language used to teach mathematics and the student's construction of mathematical knowledge (Millar, 1993:311). Millar states "without an understanding of the vocabulary that is used routinely in mathematics instruction, textbooks, and word problems, students are handicapped in their efforts to learn mathematics" (Millar, 1993:312). As a tutor I must be able to introduce and use the specialised mathematic vocabulary as a part of classroom discourse, so that the students in turn will begin to express themselves, through speaking and writing, in this new language. Millar states this is in the words, "The link between the passive reception and active expression of mathematics is language" (Millar, 1993:316).

In concluding their study, Marks and Mousley found, "If communication of mathematics ideas is not to be a special kind of communication accessible only to those who know a special code, teachers need to teach a range of genres throughout the schooling process" (Marks & Mousley, 1989:156). Appropriate genres in adult education need to cover the various purposes for using mathematical language such as describing, explaining, designing and predicting situations. Gawned has described a multi-level model of the language of mathematics. Within this continuum model, Gawned has identified four specific language of mathematics components:

1. the language of reasoning or problem-solving
2. the language of the mathematics curriculum
3. activity-specific language

4. the literacy of mathematics (Gawned, 1990:32).

Within this study I am interested in how the adult develops the language of the mathematics curriculum in particular; the other components are mutually inclusive. The language of reasoning is often complex, and the role of the scaffolder or model is important. Activity-specific language refers to the purposes and genres appropriate to a task. The literacy of mathematics is concerned with the representation and recording of mathematical problems and events.

Cassar-Patty states, "We cannot separate the teaching of facts and concepts from teaching students how to use appropriate vocabulary, how to write for a purpose and how to understand what they are reading" (Cassar-Patty, 1990:9). So, in this study I expose the adult to a wide range of discourse which involves both oral and written communication as well as other language forms. As Willis observes,

> Students need experience of the use of mathematical concepts and skills in a range of contexts and with tasks which vary from the relatively familiar to the unfamiliar, from the structured to the unstructured, so that they come to see that part of the power of mathematics lies in the potential for particular ideas to be used in many different situations (Willis, 1990:10).

In addressing the question of how language can reshape the mathematical knowledge of the adult learner from the informal to the formal, I base the study around the themes identified as relevant to this issue, in particular, ethnomathematics, pedagogical ideas, power relations and specific linguistic complexities.

METHODOLOGY

This study was conducted with adult students engaged in two ALBE courses. A 'Maths at Work' group comprised a heterogeneous community of adults, ranging in age from 20-50 years, who had the common purpose of improving their numeracy skills. Most had been referred to ALBE through employment agencies and none had previously attended an adult numeracy class. Some of the participants intended from the outset to enrol in a Grade 10 Certificate course at the completion of this 10-week course. The other group in the study was the current Grade 10 Maths class, which again comprised a mixture of ages and experience.

In investigating how language can reshape the mathematical knowledge of the adult learner, there must firstly be evidence that there exists good functional numeracy skills comprising mathematical knowledge in the participants in an ALBE class. In this study I sought such evidence based on Bishop's notion that mathematical knowledge is analysable into six main categories: counting, locating, measuring, designing, playing and explaining (Bishop, 1993:151). Firstly, I detailed four case studies which provided a basis for such evidence. As a data base I used transcripts of classroom conversations, personal journal-writing, written reports on topics where a process approach was employed and transcripts of course evaluation questionnaires. I grouped data into the broad categories outlined by Bishop (1993:151).

If the data collected and analysed according to Bishop provided the baseline evi-

dence that there existed mathematical knowledge in an informal sense in the adult learners, then there must have been further evidence that pedagogical processes were reshaping this knowledge into the formal mathematical language appropriate to completing a Grade 10 certificate course. Such pedagogical processes have been outlined by Bickmore-Brand (1990:2) and in this study I analysed classroom discourse using a Heritage (1984) approach, and examined the results for evidence of context, modelling, scaffolding and metacognition. Integrated with these strands of pedagogical processes are the requirements of the ownership of learning by the individual and the sense of community of the adult study group in which any individual is prepared to take risks and attempt to surpass boundaries in a comfortable environment supported by teacher and classmates. Evidence was sought in classroom discourse for such features.

In this study I applied conversation analysis (Heritage, 1984) to the pedagogical processes taking place, with particular emphasis on the orientation of three-part sequences or triads, in which a question is responded to and in turn evaluated. Heritage states, "Rather, conversation analysis represents a general approach to the analysis of social action which can be applied to an extremely varied array of topics and problems" (Heritage, 1984:291). Each transcript of conversation was analysed in relation to context and structure.

Woven through these pedagogical processes, which are reshaping the mathematical knowledge, are power relations which can be analysed according to a Fairclough approach in which the relationship between texts, processes and their social conditions are determined (Fairclough, 1989:24). Fairclough argues that in discourse power is exercised and enacted, whist on the other hand, there are relations of power behind discourse. "In both cases, power is won, held and lost in social struggles" (Fairclough, 1989:73). Using a Fairclough approach I looked at the power relationships that existed within the ALBE group. In particular, I studied where traditional didactic teaching involving a teacher-pupil relationship existed and whether there were more dialectical alternatives. Does the class discourse lose direction if the teacher relinquishes his/her dominant role, and do other pedagogical processes come into play?

Finally, if the pedagogical processes have reshaped the mathematical knowledge of the adult learner, then there must have been evidence of the new formal discourse of mathematics within the language used by the ALBE students. If this was so, then there should have been evident examples of a new semiotic system employed by students in their spoken and written language. Through conversation analysis of classroom and interview transcripts, and discourse analysis of written reports, journals and evaluations using a Halliday (1975) approach, I demonstrated that the ALBE students engaged in this course have developed a complex formal language with specialised words and symbols not found in other registers. Some data consisted of direct questionnaire results, where the student was asked to give the meanings to some words directly, or to choose an appropriate meaning for a mathematical statement from a list of alternatives. Such methods were employed to analyse specific linguistic features such as lexical ambiguity and the use of mathematical words in new contexts.

I envisaged that such a broad range of analytical methods would give an encompassing answer to the question of "How can language reshape the mathematical knowledge of the adult learner from the informal to the formal?"

DESCRIPTION OF RESULTS

In this chapter I present data which is later analysed, according to a broad range of methods, addressing the question of "How can language reshape the mathematical knowledge of the adult learner from the informal to the formal?".

Section A - Ethnomathematics

Firstly, through case studies, I demonstrate the depth of mathematical knowledge, albeit informal, that exists within a group of ALBE students. When an adult enrols in an ALBE course, he/she has normally set certain goals. These may be quite specific, or indeed, very vague. Often the adults are long-term unemployed and have been referred to the course by employment agencies. Even so, their goals are mostly far removed from obtaining immediate employment opportunities. For many it is self-esteem solely, for others it is a gateway to further courses. An examination of the goals and purposes for enrolling in an ALBE course reveals much about how the adult learner is already a storehouse of complicated, but informal, mathematical knowledge.

Case Study 1 (David, aged 24, single)

David left school at 16 with ambitions in horticulture. He was unable to gain a place in a pre-apprenticeship TAFE course, but was fortunate to commence employment at a hospital soon thereafter, initially as a kitchen-hand. David, now aged 24 and an Ordinance Officer at the same hospital, has built and furnished a house and bought a car, with little borrowing. Whilst David's perceived skills in Mathematics at Grade 10 level may not have been sufficient to gain an apprenticeship, he has a numeracy knowledge and language that obviously serves him well in everyday life. However, he indicated that there was an inadequacy in his abilities and came to the course with an expectancy, in his words, "to gain better understanding of maths and work and life skills".

David recognises that Maths is not an isolated skill that needs fine-tuning, but has the depth of experience to recognise that learning processes are relevant to life experiences and the building of a framework which encourages greater skills and knowledge acquisition. David is ready to engage in a new learning situation.

Case Study 2 (Rosie, aged 40, single mother)

Q. When did you last study Maths?
A. 25 years ago.
Q. What are your 'good' feelings about doing this course?
A. To learn more about division, percentage, fractions.
Q. What are your 'bad' feelings about doing this course?
A. Hoping to understand these things.

Q. What do you hope to learn or achieve from this course?
A. The achievement of doing these will be a great help.

Rosie is a single mother of two primary-school-age children. She copes very well with running an organised home, including all domestic chores and maintaining a strict home budget. Rosie is interested in cake-making and decorating and is often asked to provide wedding cakes or other specialty cakes. Yet in the questionnaire, Rosie is quite specific about her goals for the course; division, percentage and fractions. She uses these mathematical terms clothed in her layers of maths anxiety. These words describe concepts which she feels she must understand and yet they are processes she would be using daily and competently in her personal and home life. Rosie has put up certain barriers to her learning from the outset, as she sees these concepts as being quite specific and learned.

Case Study 3 (Chris, aged mid-40s)

Chris is married and the father of six children aged from infancy through to early teens. Chris is unemployed and has spent much time at home attending to the domestic chores of an extremely busy household. He also supports his wife's interest in genealogy. From his journal, Chris writes,

> Everything was basic when I attended school.... I was in one of the lowly rated classes, as the teachers thought it to be hopeless to try and teach me anything.
>
> Thinking back, I would have to agree with them. I certainly wasn't the sort of student that would cause a teacher to want to rush to school to teach me.
>
> It is amazing how quick one will learn when it comes to handling his/her own money, I know I did. A supermarket is a great place to do this, adding up - I think I did all my training in them. I learned a lot from doing the shopping and still do.
>
> You can only learn so much from a supermarket. What was to happen to me in the past twelve months was unforeseeable.
>
> I was introduced to Adult Education. This was something I would not have gave a second thought of entering. Things change though, you don't get many second chances, so when I got mine I grasped it with open arms. I though it would be a chance to achieve what I'd failed to achieve first time round.
>
> I have completed an English course, I am now nearing the end of a Maths course.
>
> When I have completed them, I will be able to sit back and say at least I gave my best, even if I don't pass, I will know I gave all I had to give.

Chris certainly did give his best: At the end of the year he received Outstanding Achievement (OA) in both Certificate Maths and Certificate English at the Grade 10 levels offered. Chris pays some recognition to the informal mathematical knowledge that he had prior to entering the course, but he has the desire to learn more beyond 'super-

market maths'. He expresses the desire to formalise his mathematical knowledge.

Case Study 4 (Lesley, aged mid-40s)
Lesley is a grandmother, and also the mother of a four-year-old child. She is an interesting character who is confident, and will voice her knowledge, her goals and any problems with ease. Lesley was referred to ALBE through a disabilities program. She has suffered epilepsy throughout her life and consequently missed much of her early formal education. The epilepsy is now controlled by medication, although Lesley has problems working with computer displays and other visual learning aids.

Lesley has many achievements to her name. She is an expert knitter and makes garments on commission. She enjoys cooking and caters for many functions from a community centre. She is proud of the fact that she once catered at a civic reception for the then Prime Minister's wife, Mrs Hazel Hawke. She also catered in recent years for her own wedding and this involved such tasks as estimation, quantifying, budgeting and ordering.

I first asked the question, "How can language reshape the mathematical knowledge of the adult learner from the informal to the formal?" after I had spent many hours working with Lesley and attempting to focus on her needs and perceived gaps in her learning.

Lesley enrolled in 1994 in an ALBE Grade 10 Certificate course that I was conducting. After a few weeks of struggling with the syllabus requirements, Lesley decided to leave the course. This was a great disappointment to me, because at this stage I had recognised numeracy skills and mathematical knowledge that surpassed the average ALBE student who managed the course quite comfortably. Further discussions with Lesley convinced me that here was an adult who had almost everything to achieve excellent results at Grade 10 level: She had a wealth of life experience, she had commitment to the course and a willingness to learn, she had a working knowledge of mathematics that was immeasurably sophisticated and yet she lacked the language that could reshape this knowledge into a formal syllabus-based subject mathematics which could be recognised and measured.

After withdrawing from the Certificate Grade 10 Maths course, Lesley later enrolled with me in an ALBE "Maths at Work" course, where we worked together through many pedagogical processes to reshape her mathematical knowledge. I detail much of Lesley's conversation and learning in the following chapter. Lesley is now enrolled in the 1995 Grade 10 Certificate Maths course.

This cross-section of adult learners represented in the case-studies provided a base for analysis of the range of mathematical abilities and processes comprising the informal mathematical knowledge existing in our society.

Section B - Pedagogical processes
In earlier chapters I discussed the strands of pedagogical processes that Bickmore-Brand has nominated in her discussions of mathematical education: context, modelling, scaf-

folding, metacognition, responsibility and community (Bickmore-Brand, 1990:1-9). In the following chapter I analyse conversation from classroom transcripts, within these strands, using a Heritage (1984) approach, to establish whether or not pedagogical processes are reshaping the existing informal mathematical knowledge.

Section C - Power Relations

Within the various discourses that I have examined in the ALBE numeracy classes, there are a number of power relations existing which can affect the way in which language will reshape the informal mathematical language. Some of these power relations are highlighted in this study and analysed with regard to situational context (Fairclough, 1989:146), the participants and the establishment of social order. Particular attention is paid to the role of language in the analysis of power relations.

Section D - A New Language

Given that there has been a reshaping of the informal mathematical knowledge of the adult learner through a variety of pedagogical processes, then there should have been evidence of a new formal language employed by the ALBE students. In this section I also present some data which is later analysed with regard to its linguistic features to show whether or not there has been a new language learnt by the adults in the study.

In response to a questionnaire, Lesley gave the following replies:

Q1. Have you always understood the language used in the class?
A. No such as volume, I thought it was a knob to turn up and down the TV sound.
Q2. What words, ideas, or symbols were completely new to you?
A. perimeter, volume, metric measures, π pi, area.
Q3. Have you now changed your language at all? For example, do you use new words now?
A. Yes, now I ask for 320 g sliced meat. I knit jumpers and cardigans for my daughter. I know what size chest she now takes in metric measurements. I only knew inches, feet, yards and miles.
Q4. Are there words, symbols or ideas that you still do not understand?
A. Yes, but as yet I haven't come across them as I haven't done geometry. Rhombus sometime I might learn the meaning of these words.

Another ALBE student, Jack, gave the following definitions in a questionnaire:

sum:	the amount of money
quotient:	the price to cut the lawn
angle:	do not know
fraction:	starting to understand the meaning of them
factor:	do not know
perimeter:	do not know
measure:	length of timber
metre:	the measurement of a straight line.

In the following section these results are analysed on the basis of a change in lan-

guage register and other lexical features.

DATA ANALYSIS

Section A - Ethnomathematics

The existing informal mathematical knowledge of the ALBE students is analysed according to Bishop's categories of counting, locating, measuring, designing, playing and explaining (Bishop, 1993:151).

1. Counting

Many of the everyday tasks with which adults are familiar involve counting. The case studies in the previous chapter provide examples of where counting is employed in familiar situations: Chris talks about the maths that is learnt in supermarkets. Another adult, Robyn, responds to the course evaluation questionnaire question,

Q. Have you noticed that your skills in numeracy have improved in everyday life?

A. "No, not really. In everyday life the only maths I use is adding (grocery items or money) or my tables, which I have never forgotten since primary school."

Robyn probably underrates her 'everyday maths', but recognises the need for counting in her survival tasks.

An interesting example of the use of counting is noted in the discussion below, where an adult has developed a conversion system from imperial to metric systems, based on known contexts, using informal mathematics. (The numbers on the left-hand side are transcript references.)

100 Tutor: 3/4 of a kilogram is taken from 1 kilogram and 200 grams?
101 Jody: 225
102 Lesley: No, 450 grams
103 Tutor: 450. How did you get that? How did you work that one out?
104 Lesley: Because 75 is 3/4. So I said 3/4 of the kilogram is 750.
105 Tutor: Right.
106 Lesley: Because, you're coming back to the knitting see.
3.75 me needles you know.
It all bounces back on that. Well 3/4. You buy your needles 7 3/4.
107 Tutor: Right?
108 Lesley: See. And so I just take the, like, um, like - there's 25, then 50, then 75. They're my measurements right. So I just take that away from the 1,200.
109 Jack: She's got ways of doing things, hasn't she?
110 Tutor: She certainly has!

Firstly, in statement 100, the tutor asks a direct question using appropriate mathematics (metric) terms. In 101, a student gives an incorrect answer. Quite promptly, Lesley gives a correct and complete answer, using correct unit terms (102). This 100, 101, 102 triad is an interesting initiation-response-evaluation sequence in that the tutor initiates the question, which in turn is responded to by a student, but the evaluation

comes immediately from another student, Lesley, who is quite confident in her answer. However, the tutor offers another challenge (103) by asking Lesley how she came to work that out. Responses 104-108 provide this unique, yet quite functional, counting system that Lesley has developed and employs. If a knitting needle in the imperial system is measured as a 7 3/4 and this corresponds to a 3.75 metric system unit, then Lesley is attempting to argue that 3/4 corresponds to 75, so 1/2 (counting backwards) would be 50 and 1/4 is 25. Whilst this explanation is very difficult for anyone else to understand (note Jack's comment in 109), Lesley has given an interesting example, in her own words, of an informal but sound counting system which she is able to extend and employ in other situations.

2. Locating

One popular activity in my ALBE classes is orienteering. The course is over varied terrain, and a detailed map shows such features as sealed and unsealed roads, tracks, reservoirs, recreation areas, densely wooded and open areas, as well as contours and bearings. As an introduction to the course, time is spent using a compass and learning how to orient the map according to landmarks, and measure the distance between points. Lesley completed the course very efficiently, leading her group so that they marked all points and finished well ahead of others. I observed, working with this particular group, that Lesley ignored the compass and used only a map. When I questioned her further on this she said, "Well you get to know these things. I mean I've lived on the West Coast and you just get to know tracks and clues and what it all means on a map. You don't need a compass - you just need to know what all the lines and things mean. Like, you have to, you know."

Lesley's skills in locating points on a map were certainly learned, but learned from necessity. Locating was a survival skill learnt the hard way on Tasmania's rugged West Coast, not with a compass in the classroom.

Lesley once explained to me that she could work out how far from the city centre she lived by counting the old Post Office buildings. On further questioning Lesley informed me that all the Post Offices were once built one mile apart from the city centre, and if there wasn't a Post Office there was a mile post or toll gate, so you could use these to work out the distance from the centre to a locality.

3. Measuring

During a classroom activity I posed the problem, "Estimate how long the passage is". Lesley's reply was "18.9 m".

Q. How did you do it?

A. "My shoe".

Q. How could you check this without accurately measuring?

A. "My shoe is long".

Lesley developed a system for her group to use for measuring lengths. This still required some sound mathematical knowledge such as metric units, but which demonstrates an

informal use of measurement.

Another example of measuring that Lesley provided us with was the 'cold sliced meat' example. Lesley had mentioned that she had no need for metric weights because she used her thumb and finger to show the supermarket assistant how much meat she needed. I followed this up in class with a process method on weighing cold sliced meat. Some of the discussion given below outlines the informal mathematical knowledge that is very appropriate to Lesley in this situation.

35 Tutor: Alright, How, how much sliced meat would you, would you buy when you go to the shop?

36 Lesley: Me? That much (indicating with her thumb and finger).

37 Tutor: That much.

38 Lesley: Yeah, and if it's like, um, if you're going to eat any more, it all depends, but just for sandwiches, that much.

49 Tutor: That's plenty, alright. How, how many grams do you think are in there?

50 Lesley: Oh, I've got no idea, it's that much. It's hard weighing that much. (A practical session followed using a scale to measure the actual weight.)

84 Tutor: So Lesley, what are you going to ask for next time you go in?

85 Lesley: That much ham (indicates with fingers).

88 Lesley: I'll just say I want a good handful (long pause). You see, you get to know this. I mean if I went in and asked them for 355 grams of cold cut meat, it's going to be a waste that meat that's over because when I take it home they can make their sandwiches up in the week the amount they want. There's going to be meat left over, so I'm going to have to eat it on my way home on the bus, aren't I?, and then I'm back to my normal amount. I've got it down to a tee, and that's just enough for them for their sandwiches.

89 Tutor: So you don't need to weigh it?

90 Lesley: It confuses me weights. The only time I use weights, well I don't even weigh myself any more, is to cook.

Lesley demonstrates that she has no need for any concepts such as scale, metric measurement and costing.

4. Designing

Using graph paper, I asked my ALBE students to design a garden. Initially I didn't ask for actual measurements. Later class activities included calculating measurements and costing the materials required. Two examples of student comments on design are given below.

Rosie: Garden is split into three levels with steps leading to each. First level has clothesline, shrubs around the edge with stepping stone with rose bushes on either side. Second level has barbecue area with table and chairs plus pool Third level has swing, herb garden; each level has a rock edging near the steps.

Lesley: I have made a vegie, fruit and herb garden and it is in three parts. I have all the

vegies in one part, herbs in another and fruit in the last part. I have included many shaded parts as children play in my yard. I have a sandpit, BBQ area.

Without formal mathematical knowledge, Rosie and Lesley have demonstrated that they are able to design a garden appropriate to their needs, within the constraints of the graph paper. This informal process was later developed with concepts such as scale, metric measurement and costing.

5. Playing

As a result of some friendly rivalry and classroom interactions early in the course, the 1994 ALBE Grade 10 Maths group entered a team in the local Indoor Cricket Roster, providing an excellent example of Maths at work. Some, including the tutor, never did understand the intricacies of the scoring system, but we all relied on John, our captain and organiser, to lead us in this effort. Amongst any ALBE group, one is likely to encounter the expert darts player, indoor cricketer, card hand or even home television sports viewer, who demonstrates the informal, and often complicated, working mathematical knowledge required for games and sports.

6. Explaining

During a fairly dry session on the decimal system, particularly place value, the following discussion took place:

11 Tutor: Are you familiar at all with the decimal system and the places after a decimal point?...(Long silence). No, okay....If something is written as 1.256 (demonstrates on board) that means ...its one whole number, 2 tenths, 5 hundredths, and what would the 6 ...be then? (Further discussion continues on place value).

16. Lorraine: I know, I know, um, it in, um, dollars and that.

17. Tutor:. Right. So if you had, for example, one dollar, twenty-five okay, that ...means you've got one unit, one dollar unit and how many cents ...have you got?

18. Lorraine: 25 cents.

19. Tutor:. 25 cents....So the 20, the 2 means that you've got twenty parts out of a hundred, ...and the 5 means you've got another 5 parts out of a hundred. Right....That's the tenths, so 2 tens make twenty and 5 parts out of a hundred....25 out of a hundred....So, when you're reading a decimal place you can read it to the last ...decimal place, so here the last decimal place is in the thousandths, so ...you say its 256 out of a thousand.

Through this discussion, Lorraine has used a known context, dollars and cents, to conjointly provide an explanation, with the tutor, of the decimal system and place value. Lorraine's informal knowledge of dollars and cents provided a basis for explaining a more detailed formal topic.

Section B - Analysis of pedagogical processes

1. Context

The previously discussed "cold sliced meat" study provides an example of a familiar context used as a pedagogical process with the ALBE group. After Lesley had shown the group the amount of meat that she required, the following discussion too place:

45. Jack: Now, how much is that going to weigh? ...How much is that going to weigh?
46. Lesley: That's going to be enough for sandwiches.
47. Tutor: Is that enough?
48. Lesley: Yes, That's plenty.
49. Tutor: That's plenty, alright ...How, how many grams do you think are in there?
50. Lesley: Oh, I've got no idea, it's that much....It's hard weighing that much.
51. Jack: 253
52. Tutor: 253 grams, alright....253 grams. ...Any other guesses? Any other guesses?
53. Background: No, no.
54. Tutor: Have a go.
55. Jack: About two forty.
56. Tutor: About two forty....Larry, how much do you think would be there?...Do you buy cold meat? ...How much do you think would be there?
57. Larry: I wouldn't have a clue.
58. Tutor: Wouldn't have a clue. Alright....Anyone?
59. Lorraine: I buy about four slices....That's all I ask for.

Jack's question in 45 is an interesting opening point to this analysis. Jack has predicted the purpose of a discussion which up until now has been dialogue only between the tutor and Lesley. Jack issues a challenge to anyone else in the group and breaks the tutor-student dialogue temporarily. He wants an answer in mathematical terms, as he sees that as being the purpose, but he doesn't elicit a direct response. The tutor, however, takes up Jack's challenge and issues it again in 49, but asks it now in specific mathematical language using appropriate terms. Lesley is required to give an answer to such a direct question. As she is unable to do this Lesley justifies her negative reply by the comment, "It's hard weighing that much" (50).

Jack's contribution to this discussion is to keep it moving by giving a response himself to the initial challenge (51) which is quite reasonable and in itself a challenge for further estimates. In 52 the tutor repeats Jack's response but adds the correct mathematical term, (grams), thereby evaluating his response. This initiation-response-evaluation sequence has been quite complicated and has involved a tutor and two students, who have all contributed to the challenges and responses, but the end result is that the discussion can now continue with the terms set, in that a reasonable estimate of the weight of the cold sliced meat, in grams, is required. The tutor is in a position to issue direct challenges.

Few responses are forthcoming, but Jack still continues in his role of moving the

discussion along by giving a revised response (55) which can be challenged by the tutor or students. As there are still no responses from the other students, who perhaps have been isolated from the initial dialogue between the tutor and Lesley, the tutor starts challenging students directly. In (56) the tutor challenges Larry, and follows this by the query "Do you buy cold meat?". Here the tutor is really asking, "Is this a familiar context for you, Larry?" Larry's response (57) suggests that it is not a familiar context, and that he will probably not benefit from this session. In 58 the tutor issues the challenge again, but this time leaves the direction quite open by the comment, "Anyone". Lorraine (59) puts the discussion into her familiar context then by stating that she buys four slices (of cold meat).

If the discussion had been left at this point, the use of a familiar context as a pedagogical process would have failed. However, the tutor is aware that the learning situation could easily fall apart and re-directs the discussion by adding some further information, so that the following occurs:

60 Tutor: Rosie?
61 Rosie: No idea.
62 Tutor: No idea?
63 Rosie: No.
64 Tutor: No idea. Alright. If I told you there was about ... (reading label)
65 Jack: ...about 400.
66 Tutor: ...about 490 grams to start with.
67 Jack: Yeah.
68 Tutor: Does anyone else want to have a guess now?
69 Larry: In the bag there's about 490 all up?
70 Lorraine: Did you use half of it or just a quarter of it?
71 Tutor: I'll show you.
72 Jack: Just a quarter of it.
73 Lorraine: Oh, you've only used a quarter.
74 Tutor: There's that much left.
75 Jack: You've used three quarters.
76 Lorraine: So you must have about 300 grams there.
77 Lesley: This size here is the size I'd buy.
78 Lorraine: 350.
79 Tutor: 350, about 350 you reckon now. Okay, Anyone else want to revise that?
80 Rosie: 320.
81 Tutor: 320 okay.
82 Jack: 290.
83 Tutor: You're changing yours now Jack. Okay well let's have a go at weighing it.

Jack is still very interested in this situation and eagerly contributes to the discussion, demonstrating an understanding using appropriate terms. Larry shows some interest and understanding now in the events (69), but it is Lorraine's question in 70 which

is pivotal to the outcome. Perhaps Lorraine is using familiar informal mathematical knowledge to put the process in context for her. Earlier in the discussion, Rosie (60) was not participating at all. However, at the end of the session, Rosie indicates that she can now understand the process and participates using the appropriate terms (80). Interestingly, Lesley (77) is not prepared to offer a response in strict quantitative terms, but still refers to her known domain.

On the basis of this discussion alone, there would seem little evidence that familiar context has been a pedagogical tool in reshaping Lesley's informal mathematical knowledge. However, in an evaluation questionnaire at the end of the course, Lesley makes the following responses:

Q. Can you tell me about other ways you had or have for describing or talking about some of the ideas?

A. If I wanted sliced meat I would show the person with my thumb and finger, but now I ask for a weight. Butter had to have a measurement on the packet so I could cut the amount I need. Now I ask for 320g of sliced meat.

Certainly, for other members of the group, also, the exercise using a familiar context was a worthy pedagogical process.

2. Modelling

Bickmore-Brand describes modelling as the process where the student has the opportunity to see knowledge skills and values in operation by a 'significant' person (Bickmore-Brand, 1990:2). In ALBE courses there exist many opportunities for a tutor and student to jointly reconstruct situations where a new concept can be used in a way that is relevant to the student. An example of modelling is illustrated in the discussion below, which followed a session on using serves of quiches as a basis for understanding improper fractions. Rosie was not an active participant in the first activity, responding only once to a challenge, with an incorrect answer. However, when the tutor chose to move from the context of quiches to a more formal discourse, the following took place:

159 Tutor: Now, you can actually change that down without thinking about your quiches, at the moment, by just looking at the fraction and saying, alright, if I had 8, 8 thirds we call that an improper fraction. We shouldn't leave it like that, we should bring it down to a whole number and a fraction. How can we do that? (Long pause) We can say, alright - how many threes are there in 8?

160: Lorraine:2

161 Tutor: There are 2...

162 Lorraine:and 2 left over. .

163 Tutor: Two threes are six, and there are 2 left over.

164 Lorraine:Two and a three, mmm?

165 Tutor: Right. What have we got up here? (pointing to blackboard) Seven thirds 7/3. How many threes are there in 7?

166 Lorraine: 2

167 Tutor: 2 and 1 left over.
168 Rosie: Oh, that's easier!
169 Tutor: So let's have a look at some of these. Let's look at something like 7/4. Would be what? (Silence) As a mixed...
170 Rosie: One.
171 Tutor: One.
172 Rosie: and three quarters.
173 Rosie: and three quarters. These are called improper fractions (indicating). These are called mixed numbers (indicating). They are called mixed numbers because you have whole numbers and fractions put together. If its an improper fraction the top is higher than the bottom, which means its at least over one whole. It may be 2 wholes, it may be 3 wholes or more. Okay. So, 7/4 becomes one and three quarters.

In turn 159, the tutor opens the discussion with an explanatory comment which introduces new mathematical terms such as 'improper fraction' and 'whole number'. Following the introduction, the tutor offers a challenge, which brings no initial response. The tutor then offers a second challenge by introducing a new method. Lorraine gives a partial response (160) which is evaluated by the tutor (161) through repetition, before Lorraine continues with the response (162). As a means of introducing a formal method for determining mixed numbers from improper fractions, the tutor evaluates the responses given by Lorraine in 160 and 162, by speaking in strict mathematical terms (163). In order to consolidate this process, the tutor gives another similar example and a new challenge (165). Again, Lorraine offers the response which the tutor can evaluate and expand upon (167).

At this point, Rosie enters the discussion which, since her previous incorrect answer, has been a dialogue between the tutor and Lorraine. In (168) Rosie comments on the process, demonstrating that she understands the concept now and is happier using these mathematical terms, rather than the previous idea of quiches. Rosie has a model for understanding the language and knowledge of improper fractions. The tutor offers another challenge to reinforce the concept (169) and Rosie immediately responds with correct answers (170 and 172). In 171 and 173 the tutor is evaluating Rosie's quick responses by repeating the correct answer and ends the discussion with a summary of the process using repetitive and appropriate mathematical terms. In doing so, the tutor is providing further modelling opportunities for the acquisition of this new mathematical knowledge. Worthy of note here, in the pedagogical reshaping of the informal mathematics, is Rosie's ownership of the learning process. When she understands the concept, by working through the steps involved, she boldly responds to challenges with confidence and purpose.

3. Scaffolding

Scaffolding in this study relates to building onto the adults current knowledge in order to create a new formal mathematical knowledge. An example of scaffolding would be

the earlier discussion, where Lorraine and the tutor explained the decimal system in terms of dollars and cents. In this example, Lorraine was able to build onto her current knowledge of the decimal system. Other excerpts from the same class discussion also demonstrate the value of scaffolding in reshaping informal mathematical knowledge.

1. Tutor: How did you get on reading that? Did that make any sense to you at ...all or can you see what they are trying to tell you there? Let's go back ...to that first one that we looked at. The packed suitcase weighs nine ...thousand, two hundred and forty, is that right?
2. Background: Yes.
3. Tutor: 240 grams.
4. Background: Yes.
5. Tutor: Now, we say that there are one thousand grams equals one kilogram. ...Then, here we have 9,240 grams so we've got 9 lots of these, haven't ...we? So it means that there are...
6. Background: mmm...
7. Tutor: 9 kilograms. 9 kilos and 240 grams left over....Now sometimes you might see that written as a decimal with a ....decimal point. So does anyone, anyone want to have a go at how you ...might write that as a decimal.
8. Student: Nine point two four '0'.
9. Tutor: Right, Very good! Nine point two four '0' kilograms....Nine point two four '0' kilograms.
10. Background: mmm.
11. Tutor: Are you familiar at all with the decimal system and the places after a ...decimal point? (Long silence) No, okay. If something is written as 1-...256 (demonstrates on board) that means it's one whole number, 2 ...tenths, 5 hundreths, and what would the 6 be then?
12. Jody: Units
13. Tutor: No.
14. Darryl: Thousandths.
15. Tutor: Thousandths. The units are actually those, there. (indicating) ....There's one unit. That's, that's called place value.

In this discussion, the tutor has used the familiar context of the weight of a packed suitcase to extend and build upon the student's knowledge of the metric weight system. After working through a conversion exercise of grams to kilograms, and giving a solid framework to build upon, the tutor then introduces the decimal system with a challenge (7). An unidentified student responds to the challenge with a correct numerical answer, which is, however, incomplete in the use of units (8). This is evaluated by the tutor (9) who is positive in her response and repeats the student's correct answer, but adds the unit, 'kilogram'.

In statement (11) the tutor gives a more detailed explanation of the correct answer to the challenge in (7). She then asks the students whether or not they are familiar with

the decimal system. When she doesn't get a reply, the tutor gives a further explanation of the value of places in a decimal number and offers yet another challenge. Jody responds to the challenge with an incorrect answer (12), and the tutor is quite definite in her evaluation (13). However, Darryl offers the correct response (14), which the tutor repeats and then further explains why Jody's answer was incorrect (15). At this stage the tutor introduces a new formal mathematical term, 'place value'.

This process is scaffolding, as the tutor is focusing on a particular area of formal mathematical knowledge, challenging the student so that the gaps in learning are more obvious to both the tutor and student, refocusing on the problem and then redirecting the learning by offering new information. Scaffolding has served to bridge gaps and extend the students as they move towards a more formal mathematical knowledge.

4. Metacognition

A real measure of whether or not the informal knowledge that exists within an adult has been transformed into something more abstract or complex is obtained if the student can make explicit the processes which are occurring. This is the concept of metacognition, which also involves making choices about methods and trialling new procedures.

An example of metacognition is given in the discourse below, which involved using counters to work out equivalent fractions.

174. Tutor: Alright, lets say we have, you have, ten dollars, and four-fifths of that ... ten dollars has to be paid out for a school levy. Okay. So how much ... do you have to pay out?
175. Lorraine: Two dollars.
176. Tutor: How, how much then is four-fifths of 10? (Silence).
177. Lorraine: Four fives are ten, and five fours are, what?, I don't know.
178. Tutor: Well the first thing to do is to go back to the simple one and work out ... what one-fifth would be.
179. Rosie: So you go, five into ten is two, and two fours are eight.
180. Tutor: That's right! 5 into 10 is 2, 2 fours are 8. (Silence). So what you've ... worked out there Rosie is the rule for working out these equivalent ... fractions. Okay. To use the counters, what you've done there is right, ... Rosie. See how Rosie has divided them into 5 groups. Right, I've said ... what is 4/5 of ten equal to? So, you've got to work out, four-fifths, ... okay, how many there are in one-fifth. We've got ten and we've ... divided into 5 parts. How many are there in one? And there's two in ... one.
181. Lorraine: mmm.
182. Tutor: So in four of them there's 2, 4, 6, 8.
183. Tutor: So, how much is going to the school office and how much is the child ... going to keep?
184. Rosie: So therefore, eight's going to the office, and two the child keeps.
185. Tutor: It's all still part of the ten dollars, but its been divided into four-fifths ... and one-fifth.

Here, the tutor has set the scene in a familiar context (174) and issues a mathematical challenge. Lorraine responds incorrectly to the question, so the tutor immediately puts the question in strict mathematical terms (176). An interesting response to this is that Lorraine attempts an answer using mathematical terms and conventions, but this is not nearly correct and she ends her response with, "I don't know" (177).

In 178 the tutor attempts to simplify the challenge, by leaving it in mathematical language, but introduces counters to be employed in a concrete method. Rosie (179) immediately responds to this challenge by dividing the counters into groups and giving a solution in mathematical language. This solution is repeated by the tutor in Rosie's terms as a mathematical rule, and then further explained by the tutor using the counters in a step-by-step process for the other students (180-182). Interestingly, here the tutor puts the challenge back into the original familiar contexts of the school levy and issues the challenge in different language yet again (183). This time Rosie is able to answer immediately and correctly using the familiar terms (184) and the tutor concludes the discourse by repeating the process in mathematical terms.

Rosie has demonstrated that she is able to solve a problem using concrete materials such as counters, present a clear solution to the problem using mathematical terms, and transfer this solution into an everyday situation using her own language. Such a process is indicative of her metacognition.

5. Community

Examples of the ownership of the learning by the adult student have been evident in all the descriptions of pedagogical processes. Another important aspect of adult learning is the sense of community existing in the ALBE groups. Lisa wrote in her journal about her school experience and how learning in an ALBE Maths group was different:

> During my high school years maths was for me a real nightmare and a struggle because I didn't understand the work and I was too embarrassed to say I couldn't do it. Peer pressure played a major role in our classes. When you didn't understand you acted as if you did to save being made feel an idiot. When you feel as if you are dumb you don't want to learn so you don't try! Joining a small group of adults to try and learn can be at first embarrassing but it doesn't take long for you to feel as if you can offer something to the class. When there is no pressure put on you and there is no time limit and you are made to feel as if you are capable it makes you <u>want to learn</u>!

Clearly, the sense of community and the safety that exists for an adult in this ALBE group has meant for Lisa that any early fears or anxieties quickly dissipated, so that she was able to face the new challenges with a willingness to learn. Given such comfortable circumstances and the desire for some change, it becomes easier through those processes of scaffolding, modelling and metacognition, using a variety of contexts, for the adult learner to reshape his/her existing informal mathematical knowledge.

Section C - Analysis of Power Relations and the Role of Language

In this study, examples of both traditional didactic teaching methods and more dialectic teaching are evident and used in appropriate situations. If such a pedagogical process as modelling is to be effective, then there is an assumption of a traditional didactic approach, where the roles of teacher and student, or mentor and learner, are clearly designated. Such a power relationship exists in the previous discourse in which place value was discussed (see 'Scaffolding', turns 1-15).

Analysing this discourse in terms of situational context (Fairclough, 1989:146), the following interpretations can be made. The situation is a classroom discussion involving blackboard explanations by the teacher. Two topics are being discussed conjointly, the original topic being the conversion of the unit grams into kilograms and grams, and this led to a discussion of decimal points and place value. In this case, there is a two-fold purpose of modelling the means for converting metric units, as well as a scaffolding purpose of introducing the concepts of the decimal system and place value.

If we ask the question, "Who's involved?" (Fairclough, 1989:148), in this discourse, then the answer is multidimensional. Obviously a tutor and students are involved, but these participants can also be considered as speaker and listener, or challenger and respondent. This then raises the question as to what is the relationship between participants. Consistent with a traditional didactic teaching role, the tutor initiates the discussion and the students are the listeners. Throughout the discourse, it is the tutor issuing all the challenges and the students who respond.

Central to the analysis of the power relations in this discourse is the consideration of the role of language. Firstly, language serves to interconnect this spoken text to a previously distributed written text (1). By asking such questions as "How did you get on reading that?", "Did that make any sense to you at all?" and "Can you see what they are trying to tell you there?" (1), the tutor is placing herself in the role of the expert who is going to interpret the written text.

Language is also used to situationally connect the topics; that is, how the conversion of grams to kilograms can be connected to the decimal system. The tutor does this by issuing a challenge (7), which elicits a correct response from a student, enabling the tutor to add further explanatory information. Throughout the discourse, specific formal mathematical terms such as place value (15) have been modelled by spoken language. In this example, language serves to clearly designate the roles of teacher and student, and the tutor maintains her position by asking questions and evaluating responses before giving detailed explanations. A clear social order has been designated within an institutional setting (Fairclough, 1989:146).

However, in this study I have found examples of more dialectical teaching, where the participants contribute in interactive roles to the pedagogical processes. Such an example would be the cold meat study, which has already been analysed in other sections in some detail. The situational context of this discourse is a round table discussion and some practical activities involving the estimated and actual weight of cold sliced meat. This activity was initiated by an earlier discussion in which Lesley had indicated

that she had no idea of how much meat to ask for in metric weights. So the purpose of the activity is to help Lesley have an understanding of the metric system in relation to her domestic needs. A myriad of participant relationships exist within this discourse. Firstly, there is the relationship between tutor and student: However, unlike the example of didactic teaching, this does not correspond directly to challenger and respondent. Lesley is a key participant during parts of the discourse, where she could be considered the consumer. At these times Lesley is central to the discourse and determines the context in terms of her own situation. Another powerful participant in the discourse is Jack, who displays an understanding of why this process is occurring and issues challenges (45) and responses (51) which serve to keep the discussion moving along. The relationships between participants in this discourse are dynamic and whilst there exists paired relationships of speaker and listener, or challenger and respondent, these are not necessarily aligned to the roles of tutor and student.

Language is again important in the analysis of the power relations in this discourse. An important feature of this text is the interconnections between the spoken text and the practical problem. Prior to commencing the discussion the tutor opened as follows:

31 Tutor: Lesley, I'm glad you came because before we go on with anything else on that, look at what I brought.

This is in reference to the sliced meat. Here the tutor is linking a past experiential problem, through language, to a situational context. The tutor acts more as a convenor to the discussion by asking appropriate questions, rather than an expert in control. At times her questions are quite open and leading, such as "Is that enough" (43), whilst at other times they are closed and direct, such as "how many grams do you think are in there?" (49). Through such a direct, closed question the tutor is able to introduce specific mathematical terms in which the participants can frame their responses.

Language serves in this discourse to align the participants in whichever situational context they are in at a particular time. For example, in such dialectical teaching, it may be the student, like Jack, who is challenging the group: "Now, how much is that going to weigh?" (45), or the tutor; "How many grams do you think are in there?" (49). Both are expecting a response which will determine further direction and context, and enable the formalising of mathematical knowledge.

In this discourse, the teacher still has some dominant position in her role as a convenor, so what happens if the teacher relinquishes her dominant role? Such an example is given in the discussion below:

91 Tutor: I've just brought a couple of things along here just to get an idea of sup pose, really, of food weights. How much then, do you think, any guess es now, of an apple?

92 Rosie: about 65 g.

93 Tutor: I don't expect you to be able to know. I mean I weighed this myself this morning just to see how much an apple weighed, but I'm just trying to give you an idea of what 100 g feels like and what 300 g feels like.

94 Lesley: Well, I'd say you'd need another 4 of them to make a kilo, whatever .that is
95 Tutor: You're not far wrong. (weighing apple)
96 Lesley: No.
97 Tutor: Yeah, 5 of them. That weighs 200 g around about.
98 Lesley: Yeah, I said another 4 of them to make a kilo. Is that right?
99 Tutor: That's right.

If we analyse this discourse in terms of situational context, the situation consists of a classroom demonstration which has a practical component involving the weight of an apple. According to the tutor, the purpose of the activity is to estimate weights (93). This discourse only involves three participants - the tutor and two students, Rosie and Lesley. Again, the language used is the key to unravelling the dynamic power relations existing. In the first instance, the tutor situates the discourse by giving some purpose to her actions. Immediately she follows with a traditional didactic challenge, wherein the tutor is the speaker and the students are the listeners (91). Rosie responds with a reasonable attempt (92), which is ignored by the tutor. In fact, the tutor is not at all encouraging in her response with such a comment as "I don't expect you to be able to know" (93). Perhaps the tutor is trying to maintain her role of expert by, in effect, implying that as she had no idea of the weight, she certainly wouldn't expect a reasonable guess from the students, without actually weighing the apple.

The tutor is attempting through her language to direct the discourse into a situational context where the students will be required to experiment themselves, by weighing the apple. However, the tutor's attempts are foiled by Lesley (95), who uses her own familiar context and language to confidently respond to the challenge. With her very non-specific evaluation of the response, "You're not far wrong" (95), the tutor relinquishes her dominant role. Still struggling to maintain her role, the tutor confirms the answer to her previous challenge by weighing the apple and being quite specific with her response in mathematical terms (97). However, Lesley stands firm with her original response and indignantly restates her previous reply. At this point Lesley clearly holds the dominant role in the discussion and issues a challenge to the tutor (98). Here the tutor responds with a definite answer which allows no further comment (99). With a change in power relations has come a change in the designation of roles of challenger and respondent. The social order has been turned upside down.

An important outcome is that the pedagogical process has been modified from the intent of the tutor without losing its end result. Whilst the tutor appeared to be setting up a modelling situation using a familiar context, the student (Lesley) was able to turn it into a scaffolding process, as it was such a familiar context for her. Lesley knew that five apples weighed approximately one kilogram, however, she had not considered an individual weight for apples. By controlling the discourse, Lesley elicited the formal knowledge that the tutor had intended.

Power relations are intricately woven through the discourse of ALBE numeracy classes. Whether the teacher holds the power in a traditional didactic approach or

whether other power relations are evident, it seems that evidence exists that appropriate pedagogical processes can reshape the informal mathematical language of the adult learner.

Section D - Analysis of a new language

An interesting insight into the transition from one language register (Halliday, 1975:65) to another, each with its own words and structures which express the meanings appropriate to the register, is gained by reading Lesley's responses to the questionnaire as detailed in the previous chapter.

Firstly, the word 'volume' has been given a new meaning in a new context. Here is an example of lexical ambiguity, where a word can have more than one meaning. Prior to the ALBE course, Lesley has used the word 'volume' appropriately in a register where it referred to a knob on the television. However, she now can use the word differently to describe a concept of space. In a multiple-choice exercise, Lesley correctly matched the choice (c) to the following statement:

'The cube had a greater volume than the sphere.'

(a) A television shaped like a cube can be turned up or down.
(b)The cube wasn't as big as a ball.
✓ (c) The sphere took up less space than the cube.
(d) The cube was thinner than the sphere.

Not only does Lesley identify a new use for the word, she can place it in the correct field (Derewianka, 1990:21) with appropriate meaning. Lesley does this alongside her previous language register, rather than replacing it.

There is further evidence in Lesley's second response to the questionnaire, in which she identified perimeter, volume, metric measures, π pi and area as being completely new words, ideas or symbols, that Lesley has indeed learnt a language which is formal, with specific meanings in specific contexts. As well as learning a new language which she can employ appropriately in context, Lesley has demonstrated that she can replace some of her previous language with a more learned formal register. For example, Lesley can now use metric measurements rather than imperial units, and understand the meanings of the terms.

Interestingly, Lesley has also identified the word 'rhombus' as being a lexical feature of her new register, from the field of geometry, for which sometime she hopes to learn the correct meaning. Already, through either written or spoken text, Lesley must have witnessed this word, rhombus, in use, and its association with a particular field. This process would have been possible after Lesley had experienced elements of a new formal language, through classroom talk and written texts.

In contrast, the responses, already detailed in the previous chapter, given by Jack to a questionnaire, indicate that he does not display marked learning of a new language. His definition of 'fraction' - "starting to understand the meaning of them" - suggests that Jack probably recognises that there is a new language to be learnt. In most cases Jack attempted to give some approximate meaning to these words by placing them in a famil-

iar context. For example, he defines 'sum' as "the amount of money" and 'measure' as "a length of timber". These meanings are transferable to Jack's known field but not specific to the language of mathematics. An interesting definition given by Jack is that of 'quotient' - "the price to cut the lawn". In mathematics, quotient refers to the result obtained by division and it has no equivalent meaning in any other register. Jack, however, has approximated the word to another from his own known register, that being 'quote' and defined it in his familiar words.

On the basis of these results, drawn from a survey near the end of the Maths at Work course, it would seem that Jack is in the early stages of learning a new language, whereas Lesley has grasped major elements of the same language and would be well-prepared to tackle a formal curriculum-based mathematics subject.

In this chapter I have analysed an expansive data base, according to a broad range of methods. In doing so, I have addressed the question of "How can language reshape the mathematical knowledge of the adult learner from the informal to the formal?".

CONCLUSION

Ethnomathematics encompasses the mathematical knowledge that exists within various societal domains where we find adults functioning efficiently and competently in an informal manner. Such activities as building or furnishing a house, home budgeting, catering, supermarket shopping, playing sport and survival in the real world demand a complicated and sophisticated mathematical knowledge, which may be informal in the nature of the applied language and conventions. Yet if an adult who has come to an ALBE course, with specific goals and a willingness to learn, is exposed to a range of pedagogical processes, then it may be possible for him/her to learn the language which will reshape this knowledge into formal syllabus-based mathematics.

Such reshaping has been evident in this study. I am indebted to Lesley for first providing me with this quest, and, in time, giving me some of the answers. Lesley came to ALBE classes with a personal desire to gain Grade 10 Certificate level Maths. She quickly demonstrated that her numeracy skills were most competent, her working knowledge of mathematics far surpassed survival level, her cognitive powers were most sophisticated, and yet she lacked the language that was required for formal subject mathematics.

Lesley developed a counting system for converting imperial knitting measurements into a metric form, based on a counting-by-five method. Her skills in orienteering were learnt from harsh reality, rather than in the classroom using a compass. Lesley developed appropriate measurement methods which were accurate enough for her needs. Landscape design was easy for Lesley, given graph paper and scope for her personal needs.

Likewise, other participants in the ALBE groups demonstrated this sophisticated, but informal, mathematical knowledge in their everyday lives. Students such as David and Chris, who capably run their own homes, and Rosie, who operates on a strict lone parent budget, have unrecognised mathematical knowledge. John, who eventually com-

pleted Grade 10 Maths through ALBE, is an expert indoor cricketer and manages the intricacies of a complicated scoring system with ease, although he battled with the requirements of syllabus Mathematics.

So the question can be asked: "What does language have to do with the reshaping of this informal mathematical knowledge?" Language can be used to put a particular problem in context. For example, in the cold meat study, language was used to express the initial problem and then to work through the processes of estimation and actual measurement. Whilst this was happening, the tutor and the students were able to introduce specific mathematical terms into the classroom language. An important aspect of the study was the issuing of challenges, mainly from the tutor, but also from the students. Responses were, in turn, evaluated and both processes were controlled and maintained through language. The initiation-response-evaluation sequence serves to place the discussion, with terms set. Importantly, the end result is that Lesley now asks for cold sliced meat using her new language, and much has been learnt by other students about the use of metric measurements.

Another important role that language has in the reshaping of informal mathematical knowledge is in the pedagogical processes of modelling and scaffolding. Through language, the tutor was able to introduce methods and skills upon which the student could model concepts in a relevant way. For example, Rosie was able to understand, and capably use, the concept of improper fractions, when it was modelled by the tutor through classroom discussion. At the same time, the tutor was able to introduce specific mathematical terms into the new language of the ALBE student. Language serves in scaffolding to help build onto the existing knowledge of the student, and again, the tutor is able to introduce elements of a new language, where appropriate, in classroom discourse.

Through language, Rosie has demonstrated her ability to make explicit the solving of a problem about equivalent fractions using concrete materials, state the process in clear mathematical terms and then transfer this knowledge back into everyday terms. Such a pedagogical process, involving language, is termed metacognition.

Two other important pedagogical processes in the reshaping of informal mathematical knowledge are the ownership of learning by the individual and the sense of community which makes that individual feel secure and comfortable with his/her learning. Both aspects are highlighted by the language used in classroom discourse.

Language has a very important role in the classroom when we study the power relations that exist within a group. Whether the teaching style is traditionally didactic, or a more dialectical approach, language serves to put the discussion in a situational context and to introduce the key players. The roles of speaker and listener, or challenger and respondent, are designated through language, as are the connections between topics and texts. Language serves to align the participants in their situational context at any particular time.

Evidence has been found, in this study, that it is possible for ALBE students, in reshaping their informal mathematical knowledge, to learn a new language. Lesley has

demonstrated that she can use new words in new contexts, alongside her previous language registers, or appropriately replacing some of her previous language. Another student, Jack, has demonstrated that he is in the early stages of learning a new language, but recognises that there is a language there to be learnt.

Recommendations

If an adult learner should come to a mathematics teaching situation, at any level, then recognition must be paid to the depth of mathematical knowledge, beyond mere 'survival maths', that the adult has, already. Such a person, engaged in a numeracy course, should be exposed to a range of classroom discourses, which encompass the pedagogical processes of context, modelling, scaffolding and metacognition, together with ownership and community. In doing so, the role of language in the pedagogical processes will be to reshape the mathematical knowledge from the informal to the formal. Given sufficient time and exposure, the adult learner may develop a new language suitable for formal syllabus mathematics.

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DIAGRAMS AND TEXT: REPORT ON RECENT RESEARCH, 1994-1995

Stephen Coull

INTRODUCTION

This paper is a report on research conducted at an Adult Literacy site. The investigation focused on the extent to which adult literacy learners can decode diagrams and the degree to which reading is required in that decoding process.

Since 1990 (the International Year of Literacy) much has been set in place to develop the literacy/numeracy skills of Australians in need of assistance. In Tasmania, the Adult Literacy and Basic Education (ALBE) unit is one of the main providers of programs in these areas. ALBE is a sub-program of the Institute of Adult and Community Education which comes under the auspices of the Department of Industrial Relations, Vocational Education and Training (DIRVET). It is from within this organisational structure that this study takes place.

It is widely accepted that visual images are part of our daily life. How well people are informed by the visual message has been well researched (Eisner, 1972; Arnheim, 1974). These two noted authorities on image making and image education have added considerably to this body of knowledge. However, more recently, Kress and van Leeuwen in their 1990 book *Reading Images* study the impact of words and pictures on comprehension and develop the argument that semiotics give meaningful additional information to the learner. This means that much information is obtained in other ways than just by processing the text. For example, the quality of the paper may convey a message to the reader. The way a picture accompanies the text may not only add to the meaning of the text but create a new level of awareness for the reader. But how well people are informed by diagrammatic representation has not been studied in such depth. It is still somewhat unclear how learners process diagrams and their accompanying text. This is especially so where the learner is one who does not possess adequate literacy skills in the first place (Lowe, R. 1993).

If more was known about how adults process diagram and text, then the field of assisting adults with low literacy levels may be added to in a small way - placing another piece of the jigsaw. As expressed by Long (1990), *"Diagram and text processing skills deserve as much attention as other literacy and numeracy skills. What is the cost in the workplace if they are deficient?"*.

Not just in the workplace, but in the home, too, people increasingly need to process diagrams and text. Nearly every appliance bought into the home contains instructions and accompanying diagrams.

How often do we hear the phrase *"when all else fails read the instructions"*? If this is a commonly held belief then, arguably, it is important to examine the ways in which adults who are already experiencing difficulties with the language interpret diagrams and their accompanying texts (instructions).

Following this discussion, this study attempts to identify the features of a procedural text which is used by adult learners as they implement a procedure. My objectives in this study were to find:

- to what extent the learner can cope with the diagram, and how
- which aspects of the diagram they cannot cope with, and why
- in what ways the text contributes to the learner's ability to process information in order to perform the operations required
- what sort of implications this might have for the use of diagrams in the materials prepared for adult students.

There are many definitions of literacy, but it should be remembered that 'being literate' in our society is a very broad and comprehensive concept. There are many literacies, and many contexts in which literacy exists. For this study it was important to establish the fact that being literate means being able to process visual information as well as written information. An example of this definition of literacy is clarified by Sticht: "... *literacy includes not only reading, but also writing. Additionally literacy includes the ability to perform tasks that combine written language with figures, graphs, tables, maps and other symbolic representations.*" (Sticht, 1978, as cited in Norton and Falk, 1992).

This study looks at how the learners (participants) read a diagram and the associated text. This exploratory study attempts to show to what extent the learners can decode a diagram of a Step-Tech exercise machine and the degree to which reading is required. The learners also are asked to perform some of the operations in the diagram, to find how effectively they can apply the information that is contained in the diagram.

LITERATURE REVIEW

There is limited research available in the area of low-level literacy learners and their approach to interpreting diagrams and text. Therefore, much of the discussion to follow is based upon more general research encompassing applications of learning principles and analysis of the different demands that appear to be imposed by diagrams and practical experience.

Some research has been done on the effects of diagrams and the function they play in adding to the learner's knowledge or ability to understand the subject (Gick, 1989.) This study used diagrams to solve problems by analogy. It was found that students based their solutions to problems on the basis of previously solved similar examples. In this instance the students could all read. I was interested to know if learners who have some degree of difficulty with reading would be able to solve the operations required of them in this study by using prior knowledge.

Trevor Kliese, in an article in *Good Practice* 1990, poses an interesting point. He argues that when a diagram is integrated with the text it allows information to be processed more easily. He uses the idea of 'explanative' (Kliese) illustrations which show how something works. These illustrations are accompanied by text in the form of labels alongside the diagram. This is potentially very promising from an adult literacy perspective, and is relevant to this study. It may be that the literacy instruments already

in use would be enhanced with the addition of diagrammatic presentations. Kliese does not examine the diagram itself as a learning tool. If, for instance, the diagram is poorly designed, would this create problems for the learner even before he/she starts?

This problem and associated ideas have been examined extensively in the work of Lowe (1993). He demonstrated that it is of central importance in interpreting diagrams to recognise that they are highly conventionalised and need specialised interpretative skills. One of the points he makes (which is supported in other research, for example, Kolers, Wrolstad and Bouma, 1980) is that one of the first things a diagram will require of the learner is to clump the information into known "chunks". This is not easy when we consider that reading diagrams means changing over from a representational view of the world to diagrammatic symbolism.

It is a common assumption that a diagram with its pictorial format is easy to read. But diagrams are different from pictures and present special challenges. Diagrams can create difficulties because their layouts are not real scenes but invented ones: *"graphically simple but conceptually sophisticated"* (Lowe, 1993). For example, when looking at any diagram the learner may see solid or dotted lines, arrows and cutaway views. Sometimes, small areas are magnified in another part of the diagram. Then, diagrams may also show steps in a time sequence, where nothing is as it seems. In contrast, pictures that are realistic as opposed to abstract are not as difficult to interpret. The subject matter contained in realistic pictures can readily be processed by people at most levels: A tree is a tree, a river is a river; and these motifs also have associated colours to reinforce their nature, and their existence for the viewer.

Diagrams cannot be read in the same manner as a text. "Reading a diagram requires skills that have to be learnt" (ibid) and there are several ways in which these skills differ from reading skills. One main difference is the fact that the graphical elements in diagrams vary significantly. A text usually has generally well known "rules" and is formatted in paragraphs. Even-low level literacy learners know that you start from the left and go along to the right. There are other differences too. A diagram contains symbols that must be known or learned by the learner. These symbols may vary depending on the type of diagram and its purpose. For example, a diagram of electric circuitry will differ in its symbolism from a diagram showing the underground network of a train system.

Furthermore, diagrams are different from pictures and present special challenges. A literal approach fails, as the diagram reduces three-dimensional objects to an abstract, stylised two-dimensional schema. The difficulty caused by abstract layouts is further compounded by our process of imagination. And if our background knowledge is inadequate, relationships revealed by the diagram will not be perceived at all. *"This means that some learners will not know nearly as much about how to use diagrams and how they should be processed as they would know about text"* (Lowe, 1993).

It is worth noting that generally in adult literacy circles, pictures are treated as clear and obvious supports for the text. Beverley Campbell (1990) goes further. In her article she argues that a picture, in this case a print by Picasso, can be the basis of whole

language development for the learner. Through discussion with the learners about the painting, relating elements in it to their lives and experiences proves very valuable. Campbell adds that metacognition develops and is enhanced because the learner is able to link information in the text by sounds to the non-visual information of the semiotics and the syntax. This begs the question, can a similar perspective be taken with diagrams and their texts?

Kress and van Leeuwen (1990) also go to great lengths to show the connections and links between elements of verbal texts. They don't discuss diagrams, but the work supports the general notion that much of what is seen in the visual form has extremely complex and deep layers of meaning and leads to selective reading patterns (Kress & van Leeuwen, 1990).

Other research (Sless, 1981; Mayer & Gallini, 1990; Winn & Sutherland, 1989) informs us that the presentation of material out of context will restrict the learning ability of the student. Their findings tell us that if the learning material is not relevant to the learner then his/her learning ability will be restricted. Mikulecky's findings (1980) concur. He found that work-related tasks ensured quicker learning, and that if the tasks were not directly work related then they should be at least meaningful to the learner.

It has been demonstrated by Winn and Sutherland (1989) that the use of figurative drawings assisted less able students to select useful strategies and to use those strategies to better advantage. More able students are not affected as much by variation in the form of the elements in the text. Figurative drawings differ from diagrams in ways that were discussed previously, but Winn and Sutherland's research may be relevant to the current study because the participants in this study do have a problem with the text and are "less able" in that respect. Winn and Sutherland claim that this is consistent with the previous research that has established relationships between ability and learning from diagrams (Holliday et al 1977; Winn, 1992). This information has, I believe, implications for the ALBE practitioner, since many of our students have low-level reading skills.

A study by Mayer (1989), which supports Kliese and Lowe (1993), opens a new line of attack by investigating the role of illustrations as potential vehicles for helping students understand expository texts. Results support a model of meaningful learning in which illustrations can help readers focus their attention on explanative information in the text and reorganise this information into useful models for learning.

In summary, in the context we have discussed above we have established that diagrams are significant to the learning process. They can alter the perceptions the learner may have of the task set. It is likely that the exploration of diagrams and their associated texts potentially may have an impact on literacy delivery. It is not clear, however, how significant diagrams and their texts are to adults who already experience some reading difficulties.

METHODOLOGY

An exploratory study using some ethnographic techniques was employed to interview the participants, to observe their interaction with the diagram and text at the site, and

then to analyse the collected data.

The participants in this study were a sample group of six adult literacy students. These students had already received some one-to-one tuition with volunteer tutors who had been matched with them.

All the participants were asked if they would like to be part of this work and confidentiality was stressed. The interviews were all conducted in the familiar and comfortable environment of their usual tuition rooms. Each participant was reminded before the start of the interview that the purpose of the study was to gauge the effectiveness of the diagram and the supporting text, not to test the participants.

The six participants were chosen in pairs of male and female and also in paired literacy levels. The levels corresponded to the ratings of the Interim Literacy Course Matrix (ILCM). However, in some cases this rating had been applied more than six months before this study took place. These ratings give an approximate guide to each learner's literacy level:

- Participants 3 and 6 are at a reading level of 1.1 (where reading is difficult and understanding any but the most basic text is too complex).
- Participants 1 and 4 are at a reading level of 2.1 (where reading and writing in familiar circumstances does not create too many problems, but where self-esteem is fragile).
- Participants 2 and 5 are at level 3.1 (a level where the learner can cope with a range of reading materials and understand most of it, and possesses the confidence to at times self-direct his/her own learning).

As a result of investigating Mikulecky's research, a diagram of a Step-Tech machine (see Appendix I) was chosen. It is relatively complex and so its construction would not be immediately obvious to the participants. Similar exercise machines have become popular with both men and women in recent years.

The participants all received pages 1 to 4 which included the cover page. These pages were presented to the participants in random order. In the following analysis these page numbers will be referred to, highlighting examples of the responses by the participants.

At each interview the learners were asked questions that were open-ended. For example, an early question was to identify various features of the diagram. Since the participants all had some degree of reading difficulty I felt it would be wise to do as Lowe (1993), suggested and involve the participants with ancillary support. This was done by discussing with them the conventions and symbols used in the Step-Tech diagram that may have caused some trouble.

There are many factors that make up diagrammatic schema. The ease with which something is put together may be severely affected by these elements. Accordingly, in this study the participants were asked to identify some of the diagrammatic conventions. It was hoped that any interpretive skill deficiencies that the participants may have at the beginning might be overcome so that the data would be less ambiguous.

It was quickly found that lack of interpretative skills was not apparent or was cleverly concealed. In view of this, the study included the responses of the participants to questions about the conventions of the diagram.

Later, each participant was asked how the diagram or the supporting text explains itself. Finally, each participant was asked to assemble parts of the machine. Then, as the participant was engaged in performing this operation, I would ask him/her questions such as, "What gave you the clue to do that?" and "What made you decide to do that?" Using this sort of approach it was hoped that the data collected would shed light on:

- to what extent the participant could cope with the diagram and how they did so.
- what areas of the diagram they could not cope with, and attempt to establish why; then importantly
- in what ways the text contributes to the participant's ability to process information in order to perform the operations requested.

Table 1 shows some of the responses the participants in this study gave to questions. The participants have been paired in their ILCM levels. The number in square brackets after the male/female column heading represents the order in which the participants were interviewed. The participant number is referred to in the following discussion. (The number in round brackets beneath each male and female heading is the approximate age of the participant.) Each participant differed in the way he/she approached the task, and in the way he/she went about performing the requested operations. Each participant also showed interesting attitudes to the diagram and the text. Some participants demonstrated sophisticated interpretative skills when performing the operations. It also appeared that in some instances much of the processing was done on the basis of prior knowledge and prior experiences. The following presentation will attempt to show some of these individual differences where appropriate to this study.

Concepts	Participants at ILCM 1.1		Participants at ILCM 2.1		Participants at ILCM 3.1	
	Male [6] (35)	Female [3] (60)	Male [6] (44)	Female [3] (29)	Male [6] (35)	Female [3 (29)
• Understanding the Warning	yes	no	no	yes	yes	yes
• Understanding Bolts and Measurement	no	no	no	no	no	no
• Understanding the Parts List	no	no	no	no	yes	yes
• Understanding Circles	yes	no	yes	no	yes	yes
• Understanding Short Lines	yes	no	no	no	yes	yes
• Reading the Text for Meaning	no	no	no	yes	yes	yes

RESULTS

The following discussion is broken down into sub-headings: the Warning (the text at the bottom of page two), Bolts and Measurement (page two), the Parts List (page one). This is followed by a discussion of two of the Conventions used in the diagram (page three), then a focus on Reading the Text, particularly as it is associated with the diagram. Finally, we examine Surprise Variables that were made obvious throughout the interviews.

The Warning

The participants were all asked to comment on this text. My aim was to see if they understood the meaning of the passage and on what level it had meaning for them. Some of the participants had great difficulty reading the opening sentence. When this occurred I assisted the participant. The more able participants read the warning text quietly aloud. The table shows which participants understood the meaning of the warning.

Participant 1 recognised it as a warning but was unable to decode it, saying, "*It's trying to tell you something but I don't know*". He does make an observation about the placement of the warning text. In his words,"*That should be on a different page somewhere, not with the nuts and bolts.*" This comment will be discussed later under the heading 'Reading the Text'.

Participant 3, like Participant 1, only read the first two lines of this passage with help from the interviewer. When this was done, Participant 3 said it meant, "*To ask somebody before you put it together wrong.... I suppose because there are a lot of people putting these together wrongly.*"

Participant 6 also required help to sound out the words of the first two lines. When he was asked to say what the warning meant, he replied, "*... You go and see the doctor before you use it*". When he was asked why it suggested you see the doctor, he replied, "*... Cover their arse, ha, ha, ha.*".

Participants 2, 4 and 5 appeared to recognise the meaning of the warning text. However, none gave the hidden meaning of the text as Participant 6 did, which was presumably that the manufacturing company of the Step-Tech were protecting themselves from lawsuits in the event of an injury occurring to someone using the exercise machine.

Bolts and Measurement

This section of the interview was the next logical step. The diagram information contained references to bolt lengths and bolt sizes. The connection between bolts and their measurement occurred on page two of the diagram instructions.

All the participants were observed to have difficulty to some degree with this part of the diagram and text. Participant 1 was unable to link the information on page two with the actual bolts. When he was asked how he would measure the bolts, he did not see the connection between the diagram of the bolts and the ruler, and the actual bolts on the floor. He said, "*You can't measure it on the floor, can ya?*" The connection of the real bolts and aspects of their measurement was a problem for all the participants.

Participant 2 read the length of the bolts (on page three) as one, three, four, instead of one and three-quarters. In the first instance he missed the one from the one and three-quarters figure. He observed that the bolts on page two may be exaggerated.

Participant 3 refused to discuss the bolts on page two. She was very interested in getting going and starting on the diagram on page three. Later in the interview with Participant 3 she was asked why she was using certain bolts and she replied that she was "*just guessing*".

Participant 4 did not know what bolts were, nor the difference between bolts and nuts or screws. Participant 5 did not know how to measure the bolts on the ruler. She said that it might become clearer if she read the instructions. However, there were no explicit instructions in the text that dealt with measuring the bolts.

Participant 6 also had difficulty measuring the bolts' length on the ruler. He measured them when required by using sight measurement developed from past experience. When he was shown how to align the bolts on the ruler he was still doubtful. The following dialogue from the transcripts indicates some of the thought processes he was employing:

[I = Interviewer, P = Participant]
(I) Are you relying on the diagram?
(P) Mmmm
(I) Are you using the writing at all?
(P) No, not really.
(I) Can you show me a one and three-quarters bolt?
(P) Show you one.
(I) Yes.
(P) Nar...This is two inch...nar.

The Parts List

The Parts List seemed to be an integral part of this study. It contained text, and numbers, as well as figurative representations of the actual parts. It was decided that the participants needed to be able to process information on this page in order to make correct decisions later.

Participant 2 was able to identify elements in the Parts List. For example, when asked to show the I-Shaped Base he pointed to it and said that it was like a capital 'I'. Participant 3 had great difficulty reading any words in the Parts List. When asked how she would identify elements in the Parts List she said the list told her what numbers were on the actual parts. Later, during the operations, she was annoyed at not being able to find numbers on the parts.

Participant 4 began by guessing the parts for the machine with comments like "*Could be that!*" pointing to the Support Beam instead of the I-Shaped Base. When asked why she picked up the pedal instead of the I-Shaped Base, she replied, "*...Because,...Aah...this is my guess.*"

Participant 5 began by setting out the parts on the floor in similar manner to the

way the parts were presented on the page. She went further and began to set out the bolts in order of sizes. When she was asked why she was doing this, she replied, "*As I'm looking at the parts I'm checking them off to see if they are all there.*"

Participant 6 said that the numbers next to the parts on the Parts List page meant the stages you were meant to take to put the Step-Tech together. He added that he would identify the parts by "*The shape of it for starters!*"

We can see from the table that four participants did not link the Parts List page to the information in the subsequent pages of the diagram. Only two participants at the upper end of the ILCM scale made the obvious connections.

The Conventions

In order to help clarify aspects of the participants' knowledge of conventions of the diagram, an ancillary 'walk through' the conventions of the diagram was thought to be advisable (Lowe). If participants are not aware of the symbols of the diagram it could interfere with data that depends on the participant understanding those conventions.

I felt it was important to know if the participants understood the idea of the large circles on pages three and four. The other convention tested was the short spaced lines on page three. These lines occur on the other pages of the instructions but the participants were only asked if they knew what they represented with reference to page three.

The following excerpts from the transcripts are the responses the participants gave to the question: What does the large, black-ringed circle mean?

(Participant 2) "*Taking a guess; that circle has to fall into that part of the diagram*".

(Participant 3) "*This circle shows one part joins the other....The circle tells me to look again....The big circle tells me nothing at all! Where this one [the circle within the diagram] tells me how it all joins.*"

(Participant 5) "*They [circles] show the same pieces; but one emphasised.*"

(Participant 6) "*Ummm!...Well...I don't know, ha, ha!...Aha! To highlight it!....Just shows you exactly what to do.*"

Of the six participants, 4, 5 and 6 were asked what the short spaced lines meant. It appeared that they were able to interpret the meaning of this convention.

(Participant 4) "*The bolts go through the holes.*"

(Participant 5) "*...it means that the holes must all line up there.*"

(Participant 6) "*The dots [lines] tell you how the bolts go.*"

Reading the Text

For this study it was important to see how much of the text needed to be processed in order for the participants to perform the operations successfully. Because this study used adults who all experienced some level of difficulty processing text, these tentative findings may represent a new contribution in this field.

The processing of the text presented problems for most of the participants. Participant 5 (3.1 on the ILCM scale) seemed to have the least amount of difficulty. A

feature of her processing was her manner of thinking aloud. This made it clear to the interviewer that she referred often to text, diagram and back to the Parts List and to the actual parts. This will be discussed further in the next chapter. When doubtful about a part of an operation, Participant 5 would look to find the relevant text and read that section. Nevertheless, she relied heavily on her diagram processing skills. By her own admission, "*I go by the diagram, but if I got it wrong I would go back and read the instructions.*" Participant 1 admits he "*would look at the writing, but lots of times it won't make any sense to me. And...I'm never one to read! I go by the diagram.*"

Participant 2 was tentative about reading the instructional text. He said, "*I get a better result if I just look at the picture.*" Reading text containing numerical items created some anxiety in his response. This led to confusion in the first line of the text on page three. Here he describes that "*It's just that five-sixteenth throws me.*"

Participant 2 read the instructional text (page four) until he read the word 'pedal' as 'paddle'. Interestingly, Participant 5 also misread the same word (in the same block of text) the same way.

Participant 4 could not pronounce 'washer' (page four) during her reading of the text. However she could pronounce it in isolation. She said, "*I can't pronounce that. I know what it is. It is probably my accent. It just takes a bit of time.*"

Participant 3 did not attempt to read at all, preferring to rely on the diagram and her own intuition. When she was asked why she chose the Pedal to perform an operation, she replied, "*I just know...felt it was right!*"

Participant 6 read with great uncertainty the text on page three. He later said that the text didn't explain it. He claimed that the instructions on page three should have more explicitly stated "*...which bolt goes where...What I reckon they should have put this one here ....They should have said, put four same-sized bolts in this spot.*" This interesting comment is discussed with other references, in the next chapter: Results.

The interviews at this point were revealing. It was evident that when the text became hard to decipher, the participants employed other skills. One relied on a kinaesthetic approach, others guessed, but all the participants seemed to have a body of previous knowledge that they used successfully to help them through the operations.

Surprise Variables

There were three participants who used colour to assist them to make meaningful connections when asked to perform certain operations. Participant 3 was able to insert the End Caps as required on page three. It was not that she read the instructions, but that she saw on the diagram the black End Caps and, recognising the actual Caps on the floor, was able to insert them successfully. In her words, "*They had black ends in the diagram.*" It is significant that the instruction, to 'Insert End Caps', is positioned in the middle of a line of text and between two sentences. The significance of this will be discussed in the next chapter.

Participants 1, 4, 5 and 6 paid no heed to the End Caps operation. Participant 2 used another black plastic cap to perform unsuccessfully the operation required by the

End Caps. He recognised that the End Caps must be black, but found two other caps that were provided to do the task. Although these caps were not the right size he persisted in trying to insert them. After several minutes he realised that he needed four End Caps to do the task and he only had two of the type he was using.

Colour made an operation more meaningful in the case of Participant 4. Here the participant did not know the difference between nuts, bolts or screws. After she had read the instructional text in the upper part of page four which required the reader to, 'Attach Foot Pads... to Pedals... with short screws provided', this participant proceeded to pick up two short bolts. After some discussion (sorting out the difficulty) the interviewer asked why she had picked up the bolts. She replied,"*If the instructions had said pick up the yellow screws, I would have picked up the screws straight away.*" This observation is made valid in that there were only enough yellow screws to perform this operation.

Some misinterpretation of the diagram and the text occurred. However, it is not easy to place this fault with either the instructional diagram or the participants. To illustrate this point I ask the reader to regard page two of the diagram. Here we see a series of bolts arranged in order of size; the longest is closest to the drawn ruler. Participant 4 interpreted the lines in the bolts to correlate exactly with the lines of length measurement in the ruler. This observation, when looked at from her perspective, is rational; and the bolts even have lines of unequal length as do the measurement lines in the ruler. The bolts do not show any thread, so this too creates a similarity with the ruler.

None of the participants correctly measured bolt lengths against the ruler. In nearly all cases it was trial and error and a process of elimination. Eventually the correct sizes were discovered with the participants discussed this dilemma with the interviewer. If one looks at the ruler carefully, one can see that the ruler measurement begins at the start of the head of the bolt. This was the main cause of the participants failing to measure correctly. When the participants first began to measure the bolts, they measured them from end to end.

The participants were unsure to what the fractions (pages one, three and four) referred. Closer investigation of some participants' uncertainty about the numeracy in the text discloses how some of the participants processed these aspects of the text. When the text said five-sixteenths by one and three-quarters (5/16, 13/4) these participants were confused. Only through discussion did they understand that five-sixteenths stood for the diameter of the bolt, not the length, and not the diameter of the bolt head. The instructional text does appear to not be as explicit as it could be and it is arguably right to assume that the text designers assumed prior knowledge on the part of the participants. This difficulty was compounded by the two types of print style used to show the one and three-quarter size bolt. (See the Parts List, where it is written as thirteen-fourths, compared with one and three-quarters in the text on pages three and four.) This obvious error in production acerbates the problems learners have with metacognition.

Participant 5, who set out the bolts and washers in an orderly fashion, discovered that the numbers of bolts claimed in the Parts List did not tally with the actual bolts provided. (The Parts List claimed there were 9 one and three-quarter inch bolts, but there

were only eight. Eight corresponded with the number of nuts in the Parts List and which were provided.)

Washers were used incorrectly by all the participants with the exception of Participant 6. The participants did not use the correct washers to secure "Shocks onto posts of Main Beam" (page four). This common mistake may be accounted for in two ways. Firstly, neither the diagram or the text differentiate explicitly between washer sizes. The second reason may have been that the participants who were having most trouble with the text did not read the NOTE at the bottom of page four. If the participants had read this they would have read the words "flat washer". The Parts List refers to this same washer as a "Thin Washer". There is no correlation in written terms, even if the participants had looked back and forth from page one to page four to verify.

Further misrepresentation occurred between the Parts List on page one and the diagram and the magnified circle on page four. Number eight on the Parts List is the "T" Knob. On page one, the "T" Knob is represented in black but is arguably not "T" in shape. On page four, the enlarged circle showing in clearer detail the application of the "T" Knob does not depict the same "T" Knob that is shown in the diagram. Not all the participants reached this point in the construction of the machine, but those who did, Participants 3, 4 and 5, although initially confused, did finally use the "T" Knob as indicated. Finally, none of the participants used the correct washers to perform this operation with the "T" Knob. One would expect that the lack of washer identification examined in the previous paragraph could account for this happening.

DISCUSSION

This study set out to establish the degree to which the participants could cope with the diagram and the extent to which reading was required. It is not surprising to find that the data supports the idea that the participants derived most of their information from the diagram. The visual impact of the diagram exerted a powerful influence on all the participants. This finding will now be discussed.

Table 1 shows that seven out of twelve participants answered yes to the question of understanding the conventions. The two conventions considered were the short spaced lines and the magnified, black-ringed circle.

It is surprising that Participant 6 (ILCM 1.1) was able to describe these conventions accurately. However, it was discovered during the interview that he had prior experience with various types of diagrams, in particular, technical instructional types of diagrams. (These were related to the type of work he did.) This could explain his knowledge and understanding of these conventions. However, they are conventions that are used internationally.

It is significant that his paired ILCM 1.1 participant did not know what these conventions meant. In her case, she said at interview that she was familiar with bicycles, (owning own and riding it regularly) and sometimes mended punctures. The link here, and this is supported by the data, was that she was keen to get started to put the Step-Tech together, and used her background knowledge and her kinaesthetic sense (skills) in

the process. Lowe has said that learners may think they know how a process works but unless they fully understand the conventions of the diagram they will miss important technical steps. This, as we have seen, occurred in this instance.

Similarly, Participant 4 related how at home her husband used an exercise machine that looked the same as the Step-Tech. But this participant, too, used guessing skills to perform most of the operations.

Participant 2 told how he had once helped a friend assemble an exercise machine. He, too, spent most of his time scrutinising the diagram for clues: things that he could recognise from the time he helped his friend. This concurs with previous research findings in that these participants have been conditioned to seeing and perhaps thinking in patterns that had proved successful in similar experiences in the past. These experiences, however, have not assisted the participants in any meaningful way. Nor have they been useful in developing more skills, except in the case of Participant 6, who did not score well in most areas, but was able to use prior knowledge to identify the conventions and to fully recognise the meaning of the Warning.

This idea is supported by Gick who found in her 1989 study that students based their solutions to problems on the bases of previously solved similar examples. This could be the reason why Participant 3 rushed into the operations after only a cursory view of the Parts List. She had said that the numbering on the Parts List would be reflected in numbers on the actual parts, which in fact was not the case. It does, however, suggest that at some time in the past she had solved a problem when the numbers on a parts list did match numbers on the parts. Participant 2 told a story from his days at high school where a teacher had told him he was a "visual person". Participant 2 did approach the operations with the Step-Tech in this fashion.

It should be noted here as well that Participant 6 was involved with a worker's compensation claim at the time of interview. It is reasonable to expect that he knew of some of the regulations and circumstances that involve liability and compensation. If so, this could be the reason why he was the only participant who extrapolated the implicit meaning of the Warning message, that is, that the manufacturer would be safe from litigation in the event of an injury through the use of the Step-Tech because of the stated warning in the text. However, people with low literacy skills are able to purchase exercise machines and since they cannot read any associated warnings, may be at risk. This in itself ought to provide our society and our law makers with some material for contemplation. Of course, it should be of concern to manufacturers and to those who design diagrams as well.

As stated earlier, Winn and Sutherland, (1989) showed that figurative drawings assisted less able students, and that more able students were not affected as much by variation in the form of the elements in the text. The participants in this study have been categorised into literacy levels (and only by the ILCM scale) and not categorised by an intelligence scale. So, comparison of this research data with that of Winn and Sutherland, while it may appear to support their findings, must be made cautiously, because it may not do so conclusively.

There is ample data in this study to show that all participants relied heavily on their ability to process information contained only in the diagram. Even Participant 5 (ILCM 3.1) admitted that she preferred to use the diagram first to process information. If we can say that these participants are less able in respect of their literacy, then indeed, research by Winn and Sutherland is supported by this study.

In the second proposal - that more able students are less affected by variation in the form of the text - we can draw similar conclusions. We have seen that page four of the Step-Tech instructions contains text that is sited in the upper part of the page. All the other texts, including the Warning text, are sited at the bottom of the pages. The data showed that one participant did not even see this upper text on page four, thereby missing some important procedural steps. Participant 1 said that the Warning text should not have been sited below the bolts and ruler on page two. Gick says, "*when presented with text these differences (of diagram presentation) may be attenuated or disappear entirely, as the text can compensate for the ambiguity of the diagrams presented alone*" (1989). In this study our participants did not use the text to help them process information. It did not assist them in any great measure at all.

The positioning of the Warning text may have created a pattern in the participants' approach to the rest of the texts. Selective reading - patterned seeing created by the texts being placed at the bottom of the pages - could be the reason why at least one participant failed to see the text in the upper part of page four at all.

Kliese (1991) maintains that when a diagram is supported by and integrated with the text it allows information to be processed more easily. Our data agrees with Kliese in so far that a diagram accompanied by text which is isolated from the diagram does not assist the learner nearly as much.

A most interesting feature arising from the data was the relationship between the Parts List and the diagram. One of the things that diagrams do best is to depict relationships. Through the graphics, the diagram shows implicit instructions (Lowe, 1993), for example, the use of close-spaced dashed lines that direct the learner to relate the holes to the bolts in a certain way.

It became obvious in this study that errors in the graphics of the diagram and mistakes in the Parts List influenced the processing ability of the participants. This evidence points not so much to a badly designed diagram but to the presumption by the designers that the participants' background knowledge would be adequate to cover any errors in the diagram and accompanying text.

The most problematic obstacle in the process in this study involved the bolts and the washers. It has been seen that there was insufficient information supplied by the diagram to clarify what was meant by five-sixteenths or one and three-quarters when referring to the bolts. As the data shows, participants did not know what these numbers meant. Lowe recommends that diagrams can and should provide a variety of devices, such as arrows, numbers, labels or captions, to guide the learner's reading and interpretations. This is testified to by Participant 4, who said if the "screws" had been labelled "yellow screws" she would have had no problem performing the operation. Participant

6 also said how he would have been assisted by a caption or label showing exactly "... what sized bolts go in these holes".

The washers were all indicated by the same graphics. However, there were two washers that were not indicated as special and requiring careful attention to their placement. None of the participants was therefore able to perform sustainable correct operations with the washers.

What the diagram lacked was the necessary supports to help the participants overcome false processing of information, and/or short-falls in their background knowledge. The designers of the Step-Tech diagram and associated text left out vital clues, made typographical errors and mistakes in identification of parts. One device that may have assisted the participants is a cut-away section. A cut-away section would have exposed nuts in the Main Beam that were invisible on the outside of this part. This diagram needed to be of a more superior quality, especially since the participants were all having trouble with reading the instructional text. This is in agreement with other studies where it has been shown that the most successful diagrams strike a balance between "simplifying the way the subject matter is presented and providing sufficient support" (Lowe, 1993).

CONCLUSION

The initial problem was to try to find how the participants coped with the diagram and to what extent they needed to read the text. It has been found that these participants with apparent low levels of literacy have nevertheless been able to process information in other ways to successfully assemble an exercise machine. One really needs to review the meaning of literacy. While the scale used to gauge literacy, the ILCM, is a general indicator of a person's ability, this study has demonstrated that it does not show the whole story. It is timely that the new National Reporting System is being implemented around the nation in the near future.

The conversation transcripts suggest that all participants were relaxed and not apprehensive about the interview. They were interested in the Step-Tech and could relate it to their own lives. In other words, they saw some sense and relevance in their involvement in the tasks. Some participants started with a global overview of the diagram and text. Some gave much more consideration to local aspects of the diagram. In some instances, participants did not treat some elements of the diagram or text as important at all. The participants did, however, begin with page three and in this sense began ultimately in the right place.

It is evident from the study that those participants at the lower end of the ILCM scale who had the most difficulty with reading and who largely answered "no" to the other questions, fared overall as well as those at the higher end of the ILCM scale in performing the required operations. Those who were able to read the text appeared not to be able to easily relate the meaning of what they read to the process of actually putting the parts together. This problem was highlighted by the total failure of all participants to understand the bolts and measurement linkages with the text. This finding suggests further research would be valuable if it were to examine how numeracy embedded in the

text is processed by people with limited literacy and numeracy skills.

This problem is compounded further when the numeracy factor is examined. The evidence here shows that when numeracy - in the form of fractions - was included in the text, it became confusing for these participants. Their reaction to their dilemma varied from ignoring the numeracy to confusion and puzzlement. It would appear that if numeracy must occur in the text, one or more factors become obvious and should be considered.

Firstly, these participants did not process the meaning of the measurement in terms of the numbers relating to actual parts. Secondly, these participants experienced difficulty with reading the text, and meaning gained was lost by the compounded problem of numbers, especially fractions, embedded in the text. These participants may have operated in one cognitive style to process textual information, but they needed to move into another cognitive thought process to assimilate the numeracy element. It is tempting to suggest that at the time of their schooling, English and Maths were taught as separate subjects and that separate learning patterns have continued through their adult lives.

The implication for adult literacy practitioners is that literacy and numeracy should be introduced to the adult learner in similar language and in conjunction with each other. This is already done in some literacy centres but it is done more or less on an ad hoc basis rather than on a planned, integrated policy level.

This investigation has not been able to prove or disprove that the diagram can assist the learner with understanding the instructional message in the text. It does show that the participants relied on knowledge gained from past experiences and that they relied heavily on the diagram to perform the operations and that they did not rely on the text for information. It would be of value in future research to present diagrams with text and without text, and to either integrate the text with the diagram or keep the text separate from the diagram. It may be of more use to people with low literacy levels if the text could be broken up more; for instance, all sentences could begin on a new line.

This study clearly shows that these adults with low-level literacy skills can cope with a diagram. They are able to use a visual graphical approach and utilise it to complete the tasks required. The text tended to be overlooked by the participants at levels 1.1 and 2.1. Those who had more confidence, the level 3.1 participants, were more prepared to read the text, but only if they failed to understand some diagrammatic representation.

The Warning text also tended to be disregarded by the participants, especially once it was established that it had nothing to do with putting the machine together. Although four of the six participants understood the explicit meaning, only one person could explain the implied meaning. This participant was involved in a related legal dispute. This study would conclude that the Warning text was not explicit enough for these participants. Warnings, it could be argued, should be highlighted, presented on a separate page and even formatted in a different bold font.

This inquiry into a diagram and associated text may have opened the door a little for those of us who labour to assist adults with low levels of literacy. However, as indicated above, further research would be valuable in this area of diagrams and text.

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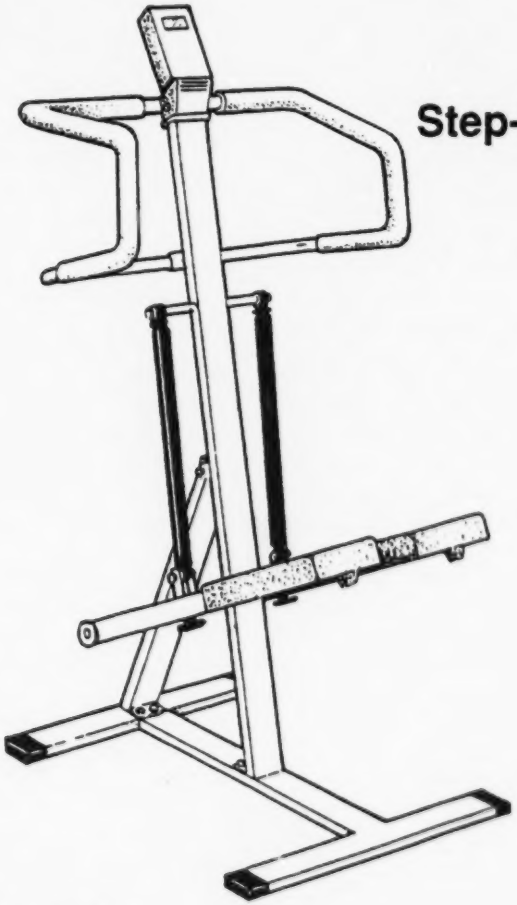
APPENDIX I: ASSEMBLY INSTRUCTIONS

Note: Instruction manual pages have been reduced here to 70% of their original size.



Step-Tech 4700

Step-Tech 4700

BMI 305W. Maple Orange, CA 92666
Customer Service (800) 321-9838
M-F 7.00 am - 4.00 pm PST

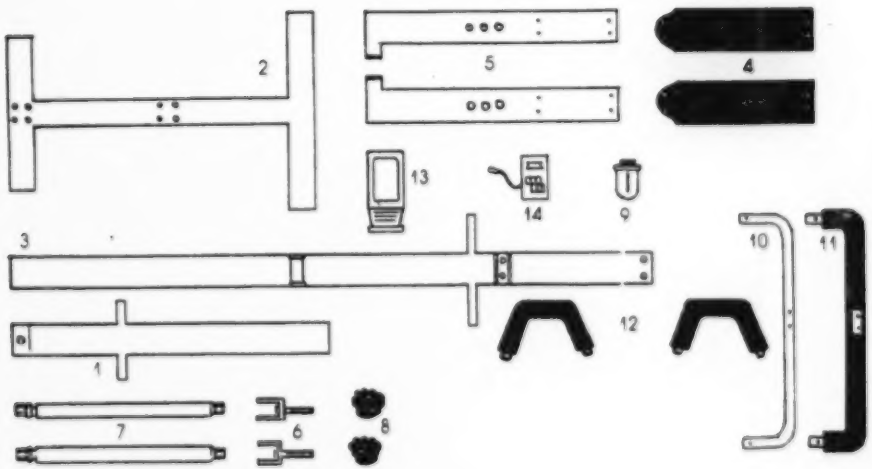
Step-Tech 4700

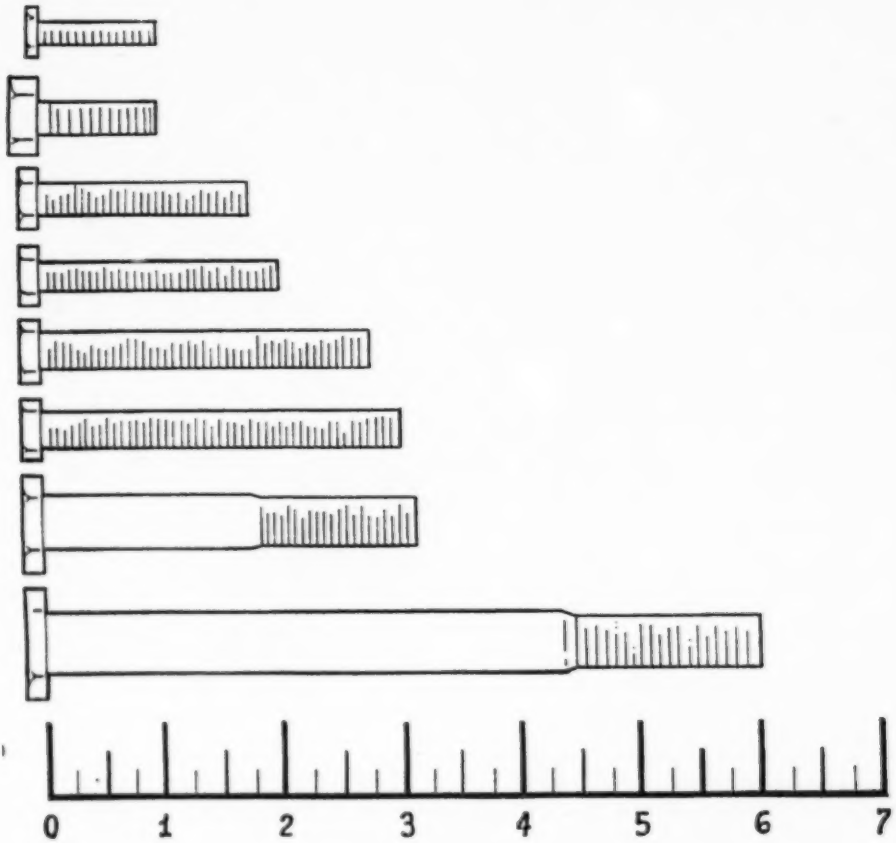
Parts List

PART #	DESCRIPTION	QTY	PART #	DESCRIPTION	QTY
1	Support Beam	1	8	"T" Knob	2
2	I-shaped Base	1	9	Magnetic Sensor	1
3	Main Beam	1	10	Lower Handlebar	1
4	Foot Pads	2	11	Upper Handlebar	1
5	Pedals	2	12	Middle Handrail	2
6	Shock Brackets	2	13	Computer Console	1
7	Shocks	2	14	Electronics Component	1

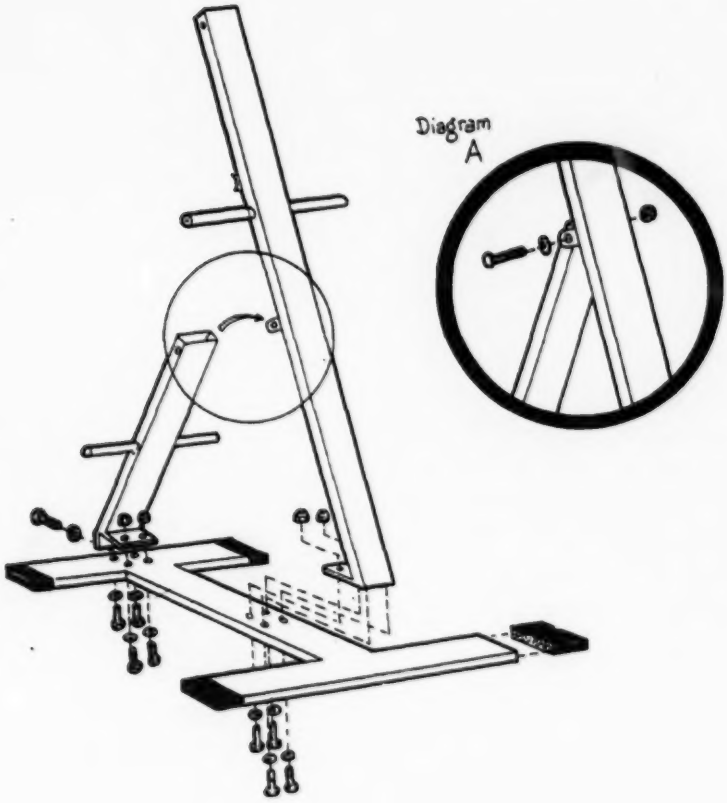
Hardware Kit

5/16" Washer	9	5/16" x 13/4" Bolt	9
5/16" Washer (large)	15	5/16" x 3" Bolt	2
5/16" x 3/4" Bolt	4	5/16" Nylon Nut	8
Short Screw	13	Pedal Bushings	4
1/4" Thin Washer	2	5/16" x 11/2" Bolt	2
		Long Screw	2

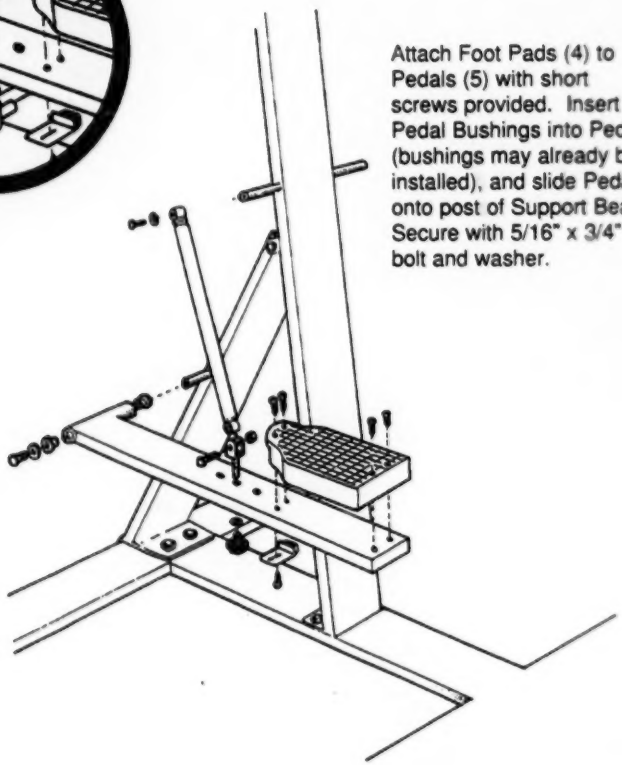




Warning: Before using this product please consult your personal physician for a complete physical examination. Frequent and strenuous exercise should be approved by your doctor. If any discomfort should result from use of this product, stop exercising and consult your doctor. Proper use of this product is essential. Please read all paper work carefully before exercising.

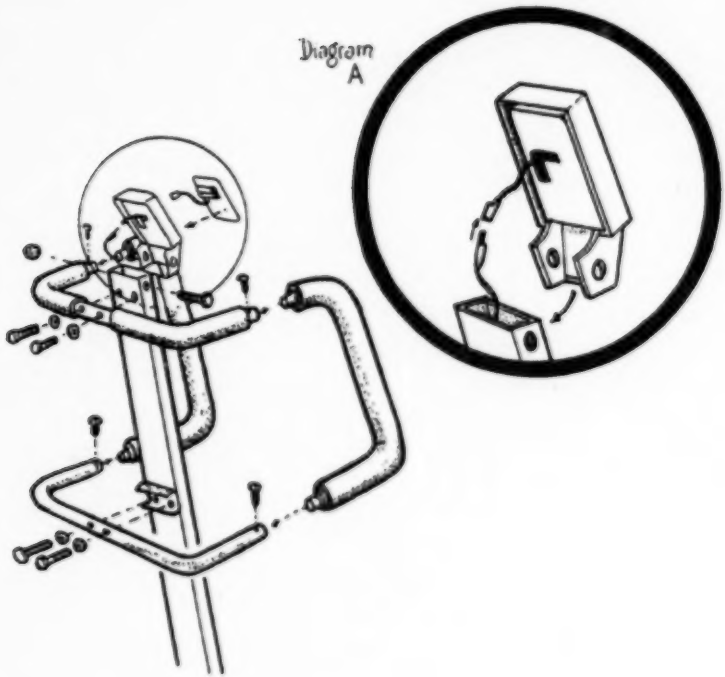


Attach Support Beam (1) to I-shaped Base (2) as shown using 5/16" x 13/4" bolts, washers and nuts. Insert End Caps. Attach Main Beam (3) to Base with 5/16" x 13/4" bolts, washers and nuts. Attach Support Beam to Main Beam at bracket (Diagram A) with 5/16" x 3" bolt and nut.



Attach Foot Pads (4) to Pedals (5) with short screws provided. Insert Pedal Bushings into Pedal (bushings may already be installed), and slide Pedal onto post of Support Beam. Secure with 5/16" x 3/4" bolt and washer.

Attach Shock Brackets (6) to bottom of Shocks (7) as shown using 5/16" x 1 1/2" bolts and nuts. Slide Shocks onto posts of Main Beam and secure with 5/16" x 3/4" bolts and washers. Attach Shock Bracket to Pedal by inserting threaded shaft of bracket in desired slot on pedal. Secure underneath with flat washer and "T" Knob (8). Attach Magnetic Sensor Assembly (9) to bottom of Pedal with one short screw. (NOTE: Failure to use flat washer with "T" Knob will result in damage to Pedal).



Attach Lower (10) and Upper (11) Handlebars to Main Beam with 5/16" x 13/4" bolts and washers. Complete handrail assembly by inserting Middle Handrail Section (12) into upper and lower handlebars, pushing foam pads back out of the way, and secure with short screws. Attach Computer Console Casing (13) at top of Main Beam with 5/16" x 3" bolt and nut. Insert Electronics Component (14) into front of casing and connect sensor wires in back (see Diagram A).

APPENDIX II : CONVERSATION TRANSCRIPTION

Note: The notation used in this record does not follow that used by Baker and Freebody (1989). The taped conversations have, however, been searched for themes and these relevant excerpts have been noted.

Participant 1

(I) Can you identify this piece of writing?
(P) "*It's warning, ... There are a lot of big words ... It's trying to tell you something but I don't know ...*"
(I) The warning tells you to have your health checked by a physician before you use this machine.
(P) "*That should be on a different page somewhere not with the nuts and bolts.*"
(I) Would you like to assemble some of this?
(P) "*Oh yeah, I'll have a go.*"
(I) Where will you start?
(P) "*I'd like to look at the whole lot.*"
(I) How would you measure the bolts?
(P) "*You can't measure it on the floor, can ya?*
... Oh I see, you can?
... If they are too long I would put them somewhere else.
(I) Can you begin to put it together?
(P) "*This one must be this piece because it looks shorter, doesn't it?*
... I can't see where it goes on there. (The diagram)
... It's not going too good.
... If this was mine I would drill a hole there.
... I knew it would be complicated."
(I) Does looking at the writing help you?
(P) "*I would look at the writing but lots of times it won't make any sense to me.*
... I would go by the drawing.
... If people who read and write better than I do would sit down and read that piece and then that;
... I'm never one to read! I go by the diagram."
(I) If you assembled the whole machine and you found you had some pieces left over, what would you do about it?
(P) "*I'd try to get it out of my head ... I'd try to read it.*"

Participant 2

(I) How would you start this process?
(P) "*I spread the diagram out in an orderly fashion.*"
(I) Why do they call it the I-shaped part?
(P) "*Well, I would say it is like an "I".*"
(I) A capital "I"?
(P) "*Yes, a capital "I".*"
(I) What does this circle mean?
(P) "*Taking a guess; that circle has to fall into that part of the diagram.*"
(I) How can you measure the bolts?
(P) "*... I would say that this is the biggest bolt and it would be six inches, but maybe it's exaggerated.*"
(I) What does this piece of writing mean?
(P) "*... If you have a bad ticker it could bring on a coronary or heart attack, plus it's a safeguard for them.*"
(I) Are there any words you don't understand?
(P) "*Naw, she was pretty good actually.*"

(I) How would you begin this process?
(P) "*We start from the base. If we go the other way you could get into a bit of a tangle.*"
(P) "*I get a better result if I just look at the picture. At high school a teacher once told me I was a visual person.*"
(P) "*These bolts ... 1,3,4 I could say 3,4 but that's not the right way to say it ... 3/4's ... So its 5/16 multiplied by 3/4's.*"
(I) What about the number in front of the 3/4's?
(P) "*Oh, the 1 ... So its really 5/16's multiplied by 1 and 3/4's ... Where it says 5/16's well that's what threw me.*"
(I) How are you feeling about this so far?
(P) "*So far, good. It's just that 5/16's threw me.*"
(I) Have you ever assembled something from a kit before?
(P) "*Yeah, a friend has an exercise bike. I helped him that's why a lot of the time you go off the diagram.*"
(I) How do you attach the base to the support beam?
(P) "*I was looking for four holes. It doesn't fit! I'll start again. This time I will screws these in first.*"
(I) If you put it altogether and there were parts left over what would you do?
(P) "*If there were nuts and bolts left over then I would say I've missed something.*"
(I) What made you read this part first?
(P) "*Right! Well, I assumed everything I wanted to know was here. I didn't even see that bit.*"
(I) Would you read this?
(P) "*Slide paddle (pedal) into post. Attach foot paddle to paddles. (pedals) secure with 3/4's by 5/16's bolts.*"

Participant 3

(I) Why did you set the pages out like this?
(P) "*So I could see them altogether.*"
(P) "*This page tells you the bolts and their numbers. I am more interested in the diagram on page 3.*"
(I) What do the circles on this page tell you?
(P) "*This circle shows one part joins the other. The other circle tells people to look again. ... The big circle tells me nothing at all! Where this one tells me how it all joins.*"
(I) What does this piece of writing tell you?
(P) "*Aw, I dunno ... I dunno the first one.*"
(I) It says warning.
(P) "*Warning before use ... using this machine ... consult your physician for a complete physical.*"
(P) "*To ask somebody before you put it together wrong. I suppose because there are a lot of people putting them together wrong.*"
(I) Can you read this heading?
(P) "*Pars ... Parts ... Parts List.*"
(I) How do you identify the pieces of the machine?
(P) "*Size ... shape.*"
(I) Yes, could you identify them by their numbers?
(P) "*Yeah, but they don't have a number of them ... They don't have numbers on them.*"
(I) Would you like to start, to ...
(P) "*Put some of it ...*"
(I) To assemble ...
(P) "*Together.*"
(I) How would you begin?
(P) "*Choose the simplest part and go from there.*"
(I) Are you sure you could do this without reading?
(P) "*Anyone can.*"
(I) Well, what will you do now?

(P) "*Well, that part there ... Well, I'd figure out about that part there first because it is there and it's not on the list.*"
(I) Why are you adding washers?
(P) "*Why?*"
(I) Yes
(P) "*You're supposed to.*"
(I) How do you know?
(P) "*Because it's on the diagram.*"
(P) "*... It doesn't line up properly ... How are you supposed to get a nut down there? ... If it can't work, I would ask somebody.*"
(P) "*Yeah, that is something I would do.*"
(I) Why are you using those bolts?
(P) "*Just guessing!*"
(I) How did you know what the End Caps were?
(P) "*They had black ends in the diagram.*"
(I) How did you know that this piece was right?
(P) "*I just knew immediately ... felt it was right ... yeah.*"
(I) Is there any part of this diagram assembly that you had difficulty with?
(P) "*So far so good ... I might of had a bit of a problem with the top bit, but once I got it there then probably I would be alright.*"

Participant 4

(P) "*My husband has a gym and it is like that.*"
(I) What does this sheet mean?
(P) "*It's the instructions.*"
(I) Can you find the Support Beam on the Parts List sheet?
(P) "*Could be that.*"
(I) What is the writing underneath the ruler?
(P) "*It says warning ... It's telling you, giving you a warning that before you start exercises, just be careful.*"
(P) "*this is the top part, this one here.*" [Participant had picked up the pedal]
(I) Why did you pick up this one?
(P) "*Because ... Aah ... this is my guess.*"
(I) Should you check the written instructions?
(P) "*Alright*" [reading] "*Attach the Support Base* [should be 'Beam'] *to the one- or I-shaped Base ... I think.*"
(P) reading "*Attach the main beam to base the 1.3 stroke 4 bolt. ...*
... It seems easy ...
... Probably read it a couple of time probably understand better ...
... (7.0) Umm ... Is that a nut? ... if you know all that it is probably easy."
(I) Are you enjoying this?
(P) "*Yes*"
(I) What would be the next bit to do?
(P) "*I think I need to read the instructions.*"
(I) Why did you read that bit?
(P) "*Because I have to attach the foot pads.*"
(I) Ok.
[Participant reads.]
(P) "*I can't pronounce that. I know what it is.* [washer] *It is probably my accent. It just takes a bit of time.*"
(I) You have picked two bolts, not two screws.
(P) "*Aha! These must be screws.*"
(I) Yes ... if the instructions had said pick up the yellow screws, you would have picked up the screws straight away.
(P) "*Yes, sometimes it is hard if you don't know the difference.*"

(5.0) "*It is interesting doing this ... learning something.*"
... Everytime you finish something you have to look at the diagram ... If you want to put something together like this you have to read the instructions ..."
(I) Otherwise ...
(P) "*Otherwise you guess ... I was guessing.*"

Participant 5

(I) What are you thinking about as you look at the diagrams and the instructions?
(P) "*As I'm looking at the parts I'm checking them off to see if they are all there.*"
(I) How are you locating them?
(P) "*By numbers.*"
(I) Good.
(P) "*Now I am looking at how it is finished ... No. 1 the Support Beam, No. 2 the Main Beam.*"
(I) What do the circles mean?
(P) "*The same pieces but one emphasised.*"
(I) What do the short spaced lines mean?
(P) "*Well, it mans that the holes must all line up there ... the bolts go through the holes.*"
(I) What does the dotted pattern mean?
(P) "*Shows it's soft, padded.*"
(I) What does this piece of writing mean?
(P) "*Warning ... Just a warning for people. You should check up with your doctor in case.*"
(I) How would you measure the bolts?
(P) "*You would have to measure the bolts on the diagram ... It's not very clear ...*
... Maybe I should read the instructions ... 5 by 16."
(I) Where would you start?
(P) "*Well these pieces would be the ones to start. There's nothing else that looks like them ... It would be too heavy to build the top first, and then to lift it up to put the bottom on.*"
(I) How are you going so far?
(P) "*It's alright, just as long as you use your commonsense and look at the diagram.*"
(I) Are there any pieces on the diagram that look difficult?
(P) "*The shocks. It looks quite complicated ... Insert paddle* [pedal] *into post on the support beam ... Well at a guess I would say these are the parts ... You have to check the diagram ... But it doesn't really tell you ... There are two different sized holes.*"
[Participant talks her way through the text and handles the pieces of the machine at the same time; very verbal.]
(I) Why have you used the wide washer?
(P) "*Because there are no smaller washers left!*"
(I) What has been difficult with the instructions?
(P) "*Probably which washer to use and the sizes of the bolts.*"
(I) Did you rely on the diagram?
(P) "*Yeah ... I did mostly ... I go by the diagram, but if I got it wrong I would go back and read the instructions.*"

Participant 6

(I) Would you identify parts of the diagram?
(P) "*Yeah*"
(I) How do you know this is the base?
(P) "*It is the shape of it, for starters..*"
(I) What do the numbers mean?
(P) "*Step 1, step 2.*"
(I) What is no. 1 called?
(P) "*set ... pace ... end ...*" (support beam)
(I) Why are the bolts shown?
(P) "*Different sizes.*"

(I) What does this piece of writing tell you?
(P) "*Wa ... warn ... warn ... ing ... warning.*"
(I) That's right!
(I) What does it mean?
(P) "*Umm, you go and see the doctor before you use it.*"
(I) Why do they say that?
(P) "*Cover their arse ... ha ha ha ha.*"
(I) What do the short spaced lines mean?
(P) "*The dots tell you how the bolts go.*"
(I) What do the circles mean?
(P) "*Umm ... Well I don't know ... ha ha.*"
(I) Well, why do they use a circle here?
(P) "*Aha! To highlight it! Just shows you exactly what to do.*"
(I) Are you relying on the diagram?
(P) "*Mmmm*"
(I) Are you using the writing at all?
(P) "*No, not really.*"
(I) Can you show me a 5/16 x 1 3/4 inch bolt?
(P) "*Show you one?*"
(I) Yes.
(P) "*Nar ... This is 2 inch* (measures the bolt) ... *Nar.*"
(I) Does the diagram show you where to put the washers?
(P) "*Nah.*"
(I) What are you thinking about?
(P) "*It doesn't line up properly ... don't know which sort of bolt to go in ... probably a very short one.*"
(I) Do you think the diagram is clear?
(P) "*Well it doesn't actually explain where the bolts go in or the washers* ... (7.0) *What gets me is why the washers are different sizes.*"
(I) It is more difficult than you first thought?
(P) "*Yeah ... a little bit ... uhhh ... it is interesting I suppose.*"
(I) What things would have made this easier? Could the writing have been made easier?
(P) "*No! Cause it didn't explain it.*"
(I) Why?
(P) "*Which bolt goes where ... What I reckon they should have put ... this one here. They should have said put four same-sized bolts in this spot.*"
(P) "*I missed some things and did a bit of guessing.*"

Contributors

Ann Brooks - Following an English and Geography teaching career in England and Tasmania, Ann was introduced to Adult Literacy through a volunteer tutor training course. Ann previously worked with young people aged 11 to 18 years. In this work she was frequently challenged and frustrated by trying to combine the flexibility to facilitate student access to communication with the constraints of timetables, set texts and exam preparation.

Ann gained the position of part-time coordinator of Adult Literacy and Basic Education (Tasmania) in 1981. For the last 15 years as the program has grown and changed, so has Ann's discovery of how to facilitate that communication access. Now coordinating delivery in workplace, labour market and community provision, Ann's experiences in the student-centred programs of Adult Education have provided some answers. Many questions still remain: How to provide resources for adult beginning readers and how to maintain an individual student response amongst ever-changing literacy contexts are of particular interest.

Rees Campbell works as a tutor with Adult Literacy and Basic Education (Tasmania). Further biographical details were unavailable at the time of publication.

Toni-Anne Carroll has worked in the areas of adult literacy and numeracy for the past six years. Coming from a professional background in food science and technology, where she was employed as a food microbiologist, Toni-Anne developed a particular interest in the literacy and numeracy skills required by production workers for retraining. Toni-Anne has worked both in Workplace Education and Adult Literacy and Basic Education. Her main areas of interest currently are the integration of literacy and numeracy in everyday tasks, with an emphasis on ethnomathematics.

Stephen Coull has, for a large part of his career, been involved with visual art education. He was granted a DEA scholarship to the United Kingdom in 1980 and has subsequently written several articles on Art Education. More recently he has been employed by the Institute of Adult Education as an Adult Literacy Officer. Stephen currently coordinates the community volunteer program in northern Tasmania. His background in visual education prompted this inquiry into the connections between diagrams and their texts.

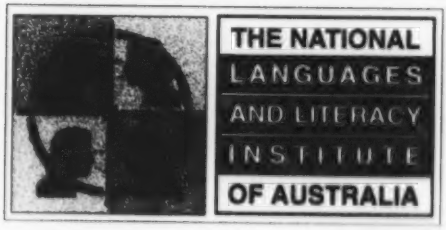
Fay Forbes has decided that her multi-disciplined background as a microbiologist, lecturer in Bioethics, and tutor in History and Philosophy goes only part way in equipping her to be a tutor in Adult Literacy and Basic Education (ALBE). Fay believes that adult students are not vessels to be filled up with facts. Rather, adult students bring with them a rich and varied background and knowledge. These students' search to be part of mainstream Australia provides an awesome challenge for literacy tutors. Fay's research project has added to the list of unanswered questions.

Patsy Hall is employed as a Staff Development officer in a Community and Health Services setting. Patsy has a nursing background and has been working in the field of Adult Education for the last 12 years. Her interest in literacy lies in the area of power and discourse and how it relates to workplace literacy. Patsy is currently studying at a Masters level researching the use of 'Plain English' in health promotion materials.

Steven Holden is currently on leave from the Department of Education and the Arts (Tasmania) and is completing his PhD in the English Department at the University of Tasmania. His research interests centre on the natural and social conditions constructing the field of literacy production, and on the social relations of power underlying texts. He also writes fiction.

Maree Watts has worked in Adult Literacy for seven years, the last three years as an assessor/administrator/teacher. She has a social science teaching background, trained as a secondary school teacher and moved into Adult Literacy originally because of her special education training. Maree has taught a wide variety of Adult Literacy clients including NESB and ESB, clients with physical and intellectual disabilities, and Aboriginal clients.

Maree is currently working with people who are registered as unemployed with the CES and are referred to enable them to improve their literacy skills. The clients' ages range from 15 to 63 years and their needs range from encouraging emerging literacy skills to revising skills for TAFE and university entry.



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